1981

Vocational agriculture student benefits from agricultural activities on school farms

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VOCATIONAL AGRICULTURE STUDENT BENEFITS FROM AGRICULTURAL ACTIVITIES ON SCHOOL FARMS

Iowa State University PH.D. 1981

Vocational agriculture student benefits from agricultural activities on school farms

by

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A Dissertation Submitted to the
Graduate Faculty in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY

Major: Agricultural Education

Approved:

Signature was redacted for privacy.

In Charge of Major Work

Signature was redacted for privacy.

For the Major Department

Signature was redacted for privacy.

For the Graduate College

Iowa State University
Ames, Iowa

1981

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CHAPTER I.

INTRODUCTION

One of the greatest challenges for vocational agriculture instructors is to provide valuable learning experiences for a diverse group of vocational agriculture students. Students enter vocational agriculture programs each year with a diversity of abilities, ambitions, backgrounds, training, and expectations. Furthermore, the resources available for learning experiences and supervised occupational experience programs are equally dissimilar.

According to Zinner (1979):

> It is the responsibility of general education as well as vocational education to develop in each student the skills, attitudes, and knowledge required to develop students into responsible and productive individuals.

Similarly, Kazanas and Wolff (1972) stated:

> Vocational and technical education must aid students to develop desirable and effective work habits, and also acquire the necessary knowledge and skills to enter and progress in an occupation.

A dilemma arises, however, due to a lack of understanding for the term vocational education. Scarborough (1961) emphasized this point by questioning the meaning of the term vocational for a ninth grade student. He too suggested that a lack of understanding exists in attempting to define this term.

Regardless of how vocational education is defined, it is important to note that practical experience has been strongly associated with vocational education and has been recognized and used as an integral part of vocational agriculture programs. We have recognized that the vocational agriculture programs vary considerably across the United States due to a wide variety of economic and social differences. With these differences, one obviously realizes that vocational agriculture instructors must use a variety of methods, techniques, and resources to provide worthwhile and practical experiences for a diverse group of students. In recognition of this fact, vocational agriculture school farms have been utilized and are presently being utilized as one means of providing the practical experiences needed for vocational agriculture students.

Sadly, there are teacher educators, vocational agriculture instructors, and high school administrators who do not recognize the value of these school farms. Apparently, these same persons do not recognize that several states are presently advocating and using these school farms as a means to provide practical learning experiences for their vocational agriculture students.

According to Phipps (1972), school farms were used in agricultural programs across the United States in the early

1900s. These school farms were initiated and used to allow students to receive practical experience in agriculture, and to demonstrate new agricultural techniques. Early in the 1900s, however, the school farm concept was replaced by the home farm project concept developed by Dr. Rufus Stimpson of Massachusetts (Stuck, 1945).

Over the years, little research has been conducted on these school farms other than to gather various types of demographic data. The interest and use of these facilities has fluctuated substantially over the years, however, several states have again recognized their value and are advocating their use.

Several states have recently surveyed their respective vocational agriculture programs to ascertain the extent of the use of school farms in vocational agriculture instruction. One study conducted in California by Dowler (1971), found that 116 of the 275 schools operating vocational agriculture programs were using some type of school farm. Several southern states are advocating the use of these farms. In Texas, Holcombe (1977), identified approximately 300 school farms in the state's vocational agriculture departments. Several years ago, Poucher (1952) discovered that approximately 90 percent of the vocational agriculture

departments in Florida were operating school farms.

In the past, states like Illinois did not believe that the school farm concept was needed. Teacher educators in Illinois emphasized that this concept was not a viable substitution for individual student farming programs. In 1977, however, it was revealed that approximately one-half of the vocational agriculture programs operated some type of school farm (Tucker, Swanson, and Hemp, 1977). Now, however, teacher educators, vocational agriculture instructors, and administrators in Illinois consider the school farm as an extremely important program component of their vocational agriculture program.

In summary, the school farm concept is once again being utilized as one means for providing practical experience to vocational agriculture students. Teacher educators, high school administrators, and vocational agriculture instructors in certain states have again recognized the value of school farms in providing vocational agriculture instruction for students.

Statement of the Problem

Practical experience has played an important role in vocational agriculture programs since its initiation. A dilemma arises, however, in regard to the means for providing these experiences for a diverse group of vocational

agriculture students. Furthermore, the vocational agriculture instructor is constantly faced with the constraints of minimal time, increasing numbers of classes, and tighter budget controls. It appears to be imperative that a large amount of group instruction be used to deal with the teaching responsibilities under these circumstances.

The school farm component has been re-initated as one means of overcoming these constraints, however, the benefits students receive from their involvement in school farm activities is unknown. Little research has been conducted on these facilities in recent years; therefore, the value of these facilities to students is not known.

We do realize however, that there are definite advantages as well as disadvantages to the use of a school farm. Furthermore, we know that differences exist in the use of these facilities. Therefore, it is imperative that the importance of school farms as a learning tool for vocational agriculture programs be assessed.

Need for the Study

A number of factors verify the need to determine the value and use of school farms in the states of Iowa, Kansas, Missouri, and Nebraska. As was mentioned previously, little research has been conducted on school farms, and practically

no recent research has been conducted in this midwestern area. One recognizes that there well may be a need for school farms in certain states, but is this need applicable to this four-state region? Do trends in vocational agriculture provide any insight to the justification of this program component? In recognition of these two questions, one realizes that several factors must be considered in an attempt to reach a viable consensus on the value of these facilities.

In answering the first question, one must recognize the vital role agricultural production provides in the states of Iowa, Kansas, Missouri, and Nebraska. According to the United States Department of Agriculture, this region represents eight percent of the total land area of the United States. In 1978, it was estimated that approximately one-third of the nation's total corn crop came from this region. Similarly, approximately one-fourth of the nation's soybean and wheat crop was produced in this area. Finally, one-half of the nation's grain sorghum production came from this four-state area (U.S. Department of Agriculture, 1979).

Not only are these four states recognized as vital as a crop production region, but also serve in essential capacities for swine and beef production. In 1979, the United States Department of Agriculture estimated that

nearly 44 percent of the nation's swine production and 22 percent of the nation's total beef production came from this region (U.S. Department of Agriculture, 1979).

The statistics reveal still another important aspect from this region. From 1978 to 1979, it was estimated that there was a decrease of 2000 farms in each of the states of Iowa, Missouri, and Nebraska. Similarly, it was estimated that during this same period, the number of farms in Missouri decreased by 1000 (U.S. Department of Agriculture, 1979).

So, according to these factors, agricultural educators have faced and will continue to face a dilemma. Educators have recognized that agricultural production from this region is overwhelmingly vital to the nation's economy. Furthermore, they have also realized that the total number of farm students entering vocational agriculture programs has decreased. Therefore, vocational agriculture programs have recruited and trained non-farm students as well as the traditional production agriculture students. This has been necessary not only to maintain program enrollment, but more importantly to provide qualified individuals for jobs in agribusiness and industry. It has, therefore, been necessary to make changes in the traditional vocational agriculture programs to meet the needs of a more diverse group of students.

The future trends in education provide still further justification for program changes in vocational agriculture programs. According to the research conducted by the National Education Association, it is believed that an annual decline in school age children will continue until 1985 (Jones, 1980). With a fewer number of secondary students, Jones stressed the need for adjusting our vocational agriculture programs. Lee (1980) advocated secondary vocational agriculture program changes based upon (1) the decline in the number of school age children, (2) the changing agricultural job market, (3) the agricultural technology explosion, and (4) greater financial pressures on public school systems. Equally important, Dr. Dan Taylor, the former Assistant Secretary for Vocational and Adult Education, emphasized the need for program changes in secondary vocational agriculture programs. In his speech at the 1980 National Agriculture Education Seminar in Kansas City, Missouri, Dr. Taylor stressed that program changes should respond to the nation's concerns on youth unemployment, energy and energy conservation, and equality for all persons (Lee, 1980).

A review of vocational agriculture programs from 1970-71 to 1977-78 revealed that teacher educators and vocational agriculture instructors have responded to these trends.

Warmbrod (1980) stated that secondary vocational agriculture enrollment remained stable over this period, actually increasing eight percent. Warmbrod furthermore noted that the program enrollment growth during the 1970s came primarily from the female sector of the society and from the recruitment of non-farm students. While total enrollment in public secondary schools increased only 1.4 percent during this period, enrollment in secondary vocational agriculture programs increased 27 percent. Finally, Warmbrod noted that non-farm vocational agriculture student enrollment rose from 40 percent in 1970-71 to 52 percent in 1977-78.

The population trends have definitely had an impact on vocational agriculture programs. The agricultural importance of Iowa, Kansas, Nebraska, and Missouri is as important as ever, however, the audiences that vocational agriculture programs serve have changed. The task ahead is not simple by any means, nor is the problem solved by recruiting alone. Rather, once these students have selected vocational agriculture programs as a course of study, it is imperative that these students be provided with the resources and learning activities to gain the knowledge and skills necessary to provide them with a valuable and practical education in agriculture.

The school farm has been re-initated as a program component to meet the changing needs of vocational agriculture programs. These farms are providing an alternative means to provide the necessary and worthwhile practical learning experiences and activities needed for a diverse group of vocational agriculture students. By no means will these school farms meet all objectives of vocational education in agriculture, however, their initiation and use demand a closer look. Based upon the agricultural importance of this four-state region, the enrollment trends affecting vocational agriculture programs, and the large number of school farms now in existence, it is vitally important that the value of the school farms in the learning process be identified.

Purpose of the Study

In 1965, a joint committee from the United States Office of Education and the American Vocational Association established the basic objectives of vocational education in agriculture. These objectives provide the basic framework for high school vocational agriculture programs nation-wide. These six program objectives and contributing objectives are listed as follows (U.S. Department of Health, Education, and Welfare, 1966):

Objective I: To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.

Contributing Objectives:

A. Begin and advance in production agriculture.

B. Manage an agricultural business effectively by:

1. Producing agricultural products efficiently.
2. Marketing agricultural products advantageously.
3. Financing an agricultural business successfully.
4. Providing for efficient agricultural buildings and mechanization.
5. Making decisions based upon the analysis of accurate and proper records.
6. Conserving the soil and other natural resources.
7. Applying effective employee-employer relationships.
8. Making the most efficient use of physical and human resources in conducting the

agricultural business, which may also involve supplemental or alternate sources of income.

C. Maintain a favorable home environment.

Objective II: To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture.

Contributing Objectives:

A. Understand and apply the principles of soil science, plant science, animal science, management, and mechanization as they relate to agricultural occupations.

B. Perform the managerial and operative activities necessary to enter and progress in an agricultural occupation by:

1. Understanding the marketing and processing of agricultural products, and the provisions of related services.
2. Understanding principles of selling supplies and providing services to meet specific needs of production agriculture.
3. Understanding how agricultural businesses

are operated and financed, and how these businesses render service to production agriculture.

4. Understanding what is expected of an employee.
5. Understanding employer policies and procedures.
6. Maintaining effective customer relations.
7. Respecting and wisely using the property of the employer.
8. Preparing, maintaining, and interpreting and using records and reports.
9. Understanding, interpreting, and following memorandums, manuals, and written policies and regulations.

Objective III: To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations.

Contributing Objectives:

A. Understand and appreciate the importance of agriculture to the Nation's economy and its impact upon the daily lives of all citizens.

B. Determine the types and numbers of occupational opportunities in agriculture.

C. Evaluate information concerning agricultural occupations.

D. Study pertinent occupational information in relation to personal characteristics, aptitudes, and interests.

E. Obtain exploratory work experiences in selected occupations under proper supervision.

F. Appreciate the need for pursuing a program of continuing education to keep abreast of and advance in the occupation.

Objective IV: To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.

Contributing Objectives:

A. Utilize the services of appropriate agencies and organizations in locating and securing satisfactory employment.

B. Analyze opportunities for self-employment.

C. Analyze job opportunities and requirements, and assess personal abilities and interests in terms of these requirements.

D. Apply for employment and participate in employment interviews.

E. Plan and pursue a program of continuing education appropriate to the requirements of the vocation.

F. Make satisfactory progress and advance in an occupation.

Objective V: To develop those abilities in human relations which are essential in agricultural occupations.

Contributing Objectives:

A. Appreciate the dignity of work and the need for every individual to make maximum contributions toward his occupation, and to the advancement of his family, his community, and his nation.

B. Establish and maintain effective and ethical working relationships with associates.

C. Communicate effectively.

D. Appreciate and follow desirable behavioral standards.

E. Develop acceptable personal and work habits.

Objective IV: To develop the abilities needed to exercise and follow effective leadership

in fulfilling occupational, social, and civic responsibilities.

Contributing Objectives:

A. Associate with and become a functioning member of an organization.

B. Identify and participate in desirable activities for developing and improving agricultural leadership.

C. Initiate activities that improve agriculture and the community.

D. Cooperate for the common good in agriculture and civic activities.

E. Develop and maintain desirable relationships between rural and urban groups.

F. Participate in the development of local, state, national, and international policies and programs affecting agriculture.

The central purpose of this study was to determine how important school farms in the states of Iowa, Kansas, Missouri, and Nebraska were in accomplishing these objectives of vocational education in agriculture. The specific objective of this study were to:

1. Identify personal and situational characteristics of high school vocational agriculture instructors

and administrators operating school farms in the four-state area.

2. Identify the benefits high school vocational agriculture students derive from school farm activities as perceived by high school vocational agriculture instructors and administrators in the four-state area.
3. Determine if significant differences exist between high school administrators and vocational agricultural instructors in regard to the perceived benefits vocational agriculture students receive from participation in school farm activities.
4. Determine if significant relationships exist between degree of benefit perceived by instructors and selected instructor and situational characteristics.
5. Determine if significant relationships exist between degree of benefit perceived by administrators and selected administrator and situational characteristics.

Definition of Terms

Vocational Agriculture School Farm commonly referred to as a "land laboratory." It is an area of land owned, rented,

or borrowed by the school, vocational agriculture department, or FFA Chapter for the purpose of intensifying the study of vocational agriculture. It is more specifically a resource used for the purpose of demonstration, experimentation, student supervised occupational experiences, student activities, FFA activities, and/or for fund raising in the vocational agriculture program.

High School Vocational Agriculture Student a male or female student, either rural or urban, who is enrolled in a course of study entitled vocational agriculture. This classification would include those students in grades 9, 10, 11, and 12.

Supervised Occupational Experience Programs all practical activities of an educational value conducted by high school vocational agriculture students outside of regularly scheduled classes in which systematic instruction and supervision are provided by the vocational agriculture instructor, parents, or employers (Phipps, 1972).

Assumption

The vocational agriculture instructors' and administrators' perceptions relating to the objectives and contributing objectives of vocational education in agriculture are a measure of student benefits.

CHAPTER II.

REVIEW OF LITERATURE

In a comprehensive attempt to develop a theorical base for the role of the school farms in high school vocational agriculture programs, only a few recent research studies were found. Interestingly enough, several journal articles pertaining to this program component did surface. These articles and research reports yielded a variety of information, providing a state of the art for school farms nationwide.

The literature review cited in this section is presented in the following three major divisions: (1) the role of the school farm in the high school vocational agriculture program, (2) considerations for the implementation of a school farm in the high school vocational agriculture program, and (3) the procedural considerations for the use and operation of a school farm in high school vocational agriculture programs.

The Role of the School Farm in the High School Vocational Agriculture Program

The first legislative commitment for vocational education in agriculture occurred with the passage of the 1917 Smith-Hughes Act. For approximately one-half century, this

legislation guided secondary vocational agriculture programs nation-wide. As indicated in the act, agricultural education programs were required to provide supervised experience to students on a farm for a period of at least six months per year (Woodin, 1967). Not only did the act substantiate and outline the need for practical experience, it, in fact, served as a guide to the philosophy of secondary vocational agriculture programs.

Phipps (1972) indicated that schools teaching agriculture in the early 1900s often owned farms so that vocational agriculture students could receive practical experience and instruction. Apparently, the initiation of the home farm project reduced the need for schools to maintain these farms. So, in launching this new concept, many schools disposed of their land. Apparently, interest in school farms has fluctuated since this period in the early 1900s.

Since the initiation of the Smith-Hughes Act, other program components have been devised and implemented to provide vocational agriculture students with practical learning experiences. Williams (1980) outlined these terms which include; "farm practice," "supervised farming," "work experience," "supervised work experience," "cooperative vocational education," and "supervised occupational experience." Each of these terms describes a different alternative

for students to receive practical educational experiences in an agricultural occupation.

In response to a national need identified by agricultural educators in 1977, the Agricultural Education Department (1977) at Iowa State University developed Standards for Quality Vocational Programs in Agriculture/Agribusiness Education. One standard established for a quality vocational agriculture program stated:

> Students are engaged in supervised occupational experience (SOE) programs that are related to their occupational objectives and are appropriate in light of their ability and place of residence.

This standard emphasized that the need for occupational experience continues to exist, recognizing that vocational agriculture students possess a diverse set of interests and experiences. Furthermore, this standard recognized that vocational agriculture programs must serve audiences other than the traditional farm student.

Teacher educators, state supervisors, and vocational agriculture instructors have long recognized the value of practical experience. Only recently have some of these persons recognized the role vocational agriculture plays in serving non-farm students. In a study conducted by Almazan (1981) at Iowa State University, it was revealed that

approximately 20 percent of Iowa vocational agriculture students were non-farm. This percentage is low compared to many other states.

Throughout the literature, authors emphasized the importance of serving the non-farm sector of the society. They also recognized that provisions for supervised occupational experience to these students is quite necessary, but frequently more difficult. The literature suggested that there is an increasing need for school farms to provide the practical experiences for the non-farm clientele as well as the traditional farm students.

According to Nelson (1972), the need for animal laboratories has increased due to the increase in urban students, difficulty in scheduling field trips, and the increased interests in pets and other animals. Pearce (1965) substantiated this need based upon the increasing number of secondary vocational agriculture students. Pearce stated that many of these students are not from farms, and are not interested in farming as a vocation. Tucker, Swanson, and Hemp (1977) pointed out that substantial numbers of secondary vocational agriculture students now come from urban areas where there is little or no access to a farm or similar production agriculture facilities. Phipps (1972) stated:

> In a community offering agriculture courses with objectives other than preparation for farming, where many of the enrollees do not live on farms, school land is necessary as a laboratory.

Moore (1979) stated that some schools have actually de-emphasized the role of supervised occupational experience, making vocational agriculture just another academic class in many of these schools. Duff (1970) and McCarthy (1980) both recognized that urban students cannot have traditional supervised occupational experience programs. Without the school farm, urban students may well have limited means for anything other than a simulated supervised occupational experience program. Puckett (1977) was even more specific in stressing the need for the school farm by stating:

> It is second best to the home farm for teaching agricultural principles and therefore, the teacher should strive to tie the home farm and land laboratory situation together to create an exceptional experience.

In this statement, Puckett (1977) realized that farm students as well as non-farm students benefit greatly from the use of a school farm. Phipps (1972) encouraged the use of school farms for rural students. He stated that school land or school farms may be used to supplement those experiences rural students obtain on home farms.

So, according to several authors, the need for a school

farm becomes almost mandatory. School farms can provide worthwhile practical experiences to both farm and non-farm vocational agriculture students. Both groups need basic knowledge and practical training in crop varieties, fertilization, soil studies, use of herbicides and insecticides, livestock management, agricultural economics, horticulture, agricultural mechanics, and other related agricultural areas.

According to several other authors, these school farms have served in capacities other than strictly providing supervised occupational experience. Kazanas and Wolff (1972) stressed the importance of developing effective working habits in students. They stated that many vocational educators have treated the development of work habits in a haphazardous fashion. Could not most school farms aid in developing these work habits? Farm and non-farm students have been taught the importance of punctuality, responsibility, pride in workmanship, and other similar work habits by means of their experiences, responsibilities, and activities on school farms. Similarly, Stump (1976) stressed the need for educational programs that aid people in understanding their actions and the ecological system which surrounds them. Stump indicated that conservation studies on school farms have aided in reaching these student needs.

Jones (1980) stressed the importance of improving our present recruitment practices in vocational agriculture. Based upon future enrollment trends, Jones noted that vocational agriculture instructors have been competing with other vocational areas for students. The school farm can be used for career exploration purposes with elementary and junior high students.

Ashley (1968) advocated the use of agricultural laboratories for rehabilitation training and retraining of physically handicapped persons. He believed that adequate laboratories have taught the skills and knowledge necessary for these persons to secure gainful employment in agricultural occupations.

Researchers at West Virginia University in 1977, described recruitment of non-farm students as meaningless unless opportunities for supervised occupational experience are provided. In this study, Lawrence and Bean (1977) investigated the reasons why students drop vocational agriculture. In their summary, they reported that of the students developing some type of experience program, 78 percent remained in vocational agriculture. Furthermore, they discovered that only ten percent of the students remained in vocational agriculture who did not have experience programs. Finally, they noted that the tendency

for students to remain in vocational agriculture also increased as their involvement with the FFA activities increased and income from their supervised occupational experience program increased.

Therefore, according to several studies and articles, vocational agriculture programs should serve both the farm and non-farm sectors of society. It is noted however, that problems do exist in attempting to establish sound occupational experience programs for non-farm students, especially ninth and tenth graders. It was also revealed that a large percentage of the non-farm students dropped vocational agriculture if worthwhile experience programs are not provided. Strong recruitment practices alone have not solved the problem of securing and training non-farm students for agricultural occupations.

In recognition of these facts, it certainly appears that secondary schools must take a more active role in providing practical occupational experiences for students. School farms over the years have provided these opportunities and the need for these school farms may be greater now than even in the past. Most vocational agriculture programs have realized their role in serving the non-farm student. Traditional curriculums have been modified, therefore, the means for providing occupational experiences for

students must also be modified. School farms have the potential to help meet the changing needs of students enrolling in vocational education in agriculture at the secondary level.

Leaders in agriculture education have become more realistic and futuristic. Future trends have been identified, new audiences have been recruited, and necessary program changes have occurred in several states. Nelson (1972) noted that high school vocational agriculture programs cannot remain in their traditional role. Nelson revealed that facilities for an ideal instructional program for vocational agriculture should include a: (1) plant and soils laboratory, (2) greenhouse, (3) animal laboratory, (4) agricultural mechanics laboratory, and (5) a combination classroom and laboratory.

A few states have provided inservice training to their vocational agriculture instructors in an attempt to better prepare these instructors for the operation of a school farm. Texas has provided a tremendous amount of inservice education orientated towards animal agriculture. Stockton (1980) noted that approximately one-third of the inservice summer workshops in Texas were orientated toward livestock production. Texas has provided agricultural education adult specialists who are employed on a full-time basis and travel

the state teaching several twelve-hour shortcourses in animal agriculture. Such courses include livestock judging, poultry judging, milk quality and dairy food evaluation, meat judging, and others. Over the past several summers, Texas has provided a five-day inservice workshop for their vocational agriculture instructors. Apparently, the animal agriculture courses, such as feeding, fitting, judging, and showing have been quite popular. A short course dealing with the use, operation, and management of school farm laboratories has gained tremendous popularity in Texas.

California has also placed emphasis on training teachers to properly operate and manage school farms. In 1971, a booklet was developed by teacher educators and agriculture instructors in the state to guide those schools who have established school farms or are considering the initiation of a school farm. The booklet discussed the philosophy of school farms, determination of the size and scope necessary, management, use in the instructional program, design of the facility, and means for measuring the educational benefits received for its operation (Dowler, 1971).

Several other states have surveyed their vocational agriculture departments to determine the extent of use of school farms. These studies do not indicate however what,

if any, inservice activities are provided for the operation and management of the facilities. Apparently, the recent use of these facilities has been quite large in several states, however, the amount of pre-service and inservice training on the topic of school farms has been limited.

The need for school farms has been established. Numerous questions regarding the actual use of these facilities have surfaced from the literature. Hamlin (1949) recognized that the profitable use of a school farm is largely dependent upon the vocational agriculture teacher. He further noted that some of these teachers have made excellent use of these school farms while others have neglected them quite badly. Bryant (1960) noted that there are several questions that should be answered before a school farm is established in a secondary vocational agriculture program. Bryant provided the following questions:

1. Will the farmers in the community allow the vocational agriculture department to use their farms for field trips?
2. Are the vocational agriculture students enthusiastic about the possibility of a school farm?
3. Are the school administrators willing for a school farm to be developed?
4. Will parents support a school farm?

5. What are the basic purposes of the operation of a school farm?
6. Is the vocational agriculture teacher willing to devote the additional time and managerial efforts necessary?
7. Is financing a problem for the FFA Chapter activities?

A summary report prepared by Dowler (1971), entitled A Survey to Determine the Use of the School Farm Laboratory in Teaching Vocational Agriculture in California High Schools, revealed several additional questions concerning the use and operation of a school farm. This report outlined the following questions:

1. Should the school farm be supported by the school?
2. Should a person be hired full-time or part-time to operate the school farm?
3. Should the vocational agriculture instructor be granted release time during the school day for supervision of the school farm?
4. What type of insurance is necessary for those persons using the facility or working on the facility?
5. Should the animals on the school farm be owned or rented?

6. Should the school farm be used to serve post high school members?
7. Should an advisory committee be established for the operation and management of a school farm?
8. Should the school farm be expected to operate on a profit basis?

Cross and Britton (1971) discussed a sample policy statement developed in Colorado for the use and operation of school farms. As indicated in their article, several other questions remain unanswered.

1. Should the school farm be established as a money making project?
2. Should the school farm have a definite annual budget for its operation?
3. Should a long term plan be developed and approved for the operation of these facilities?
4. How far from the school should a school farm be located?
5. Should the school farm be specialized or diversified?
6. How much and what types of liability insurance should be provided?
7. How should students be transported to and from the school farm?

Shami (1966) and Herring (1980) again questioned the preservice and inservice teacher education programs in preparing vocational agriculture instructors for their role in managing a high school vocational agriculture school farm. Are undergraduate students exposed to the research studies being conducted on school farms? Are the states providing sufficient practical training for teachers in order that they can secure the technical skills necessary for the operation and management of a school farm?

According to several persons, there are a number of questions that should be answered prior to the initiation of a school farm. Obviously, answers to some questions differed from one situation to another, however, a higher degree of concensus would be expected on others.

In summary, it was not the purpose of this literature review to answer these specific questions for each and every program situation. Rather, the primary purpose of this review was to provide a summary of suggestions and recommendations from experts in the field. The literature does provide useful guidelines for developing and operating vocational agriculture school farms. Finally, the literature supports the thesis that vocational agriculture students benefit from carefully planned experiences and agricultural activities on school farms.

Considerations for the Implementation of a School Farm in the High School Vocational Agriculture Program

As one would suspect, obvious differences exist among vocational agriculture programs operating school farms. As indicated by the literature, numerous differences in the school farms also exist. First of all, some school farms are quite small in size and have been managed solely under the direction of a single vocational agriculture instructor. Others are quite large, and have been operated by a full-time farm manager. Some of the farms are owned by the school district, while others are rented or used on a free loan basis. Some school farms are located several miles from the high school facility, while others are located close to the vocational agriculture classroom. Furthermore, differences exist in regard to the financial aid provided by the school district to operate farms. The school farm operating budget obviously affected the scope of the facility, the equipment and buildings available, and the type of activities available to students. Finally, some of the school farms have been established and operated due to a high percentage of non-farm students enrolled in vocational agriculture, whereas others have been developed in rural high schools.

The attitude of teachers operating school farms, regardless of the diversification in programs, has been quite

favorable. A survey conducted by Tucker, Swanson, and Hemp (1977) revealed that over 90 percent of the Illinois teachers operating land laboratories recommended them to other vocational agriculture teachers.

Even though there appears to be a favorable consensus among vocational agriculture teachers operating these farms, obvious problems are encountered with these facilities. In the Handbook on Agricultural Education, Phipps (1972) identified the following operational problems:

1. Operate the school farm as a showplace to prevent criticism, however, this extra care will cut into the profits.
2. Parents may criticize the vocational agriculture teacher for students working on the school farm during school hours. Some parents may view work outside of the classroom as possessing no educational usefulness.
3. If the school owns a large farm, a farm manager should be hired. The vocational agriculture instructor should not be expected to take on the additional responsibility.
4. When custom work is used, it is difficult to complete the job at the most optimum time.

5. If the school farm is successful, some people will discredit the results because they believe that excessive money has been spent to obtain the results.
6. The school farm places an extra burden on the vocational agriculture instructor. This added responsibility may decrease the time necessary for carrying out other supervised occupational experience programs and other phases of a well-balanced vocational agriculture program.
7. There is a danger of exploitating student labor.
8. Financial risks are involved with the operation of a school farm.
9. The vocational agriculture instructor is under pressure to "make good."
10. Profits may be used as the primary means of evaluating the success of the school farm.

In a summary report developed by Dowler (1971), California vocational agriculture instructors identified the following means of improving their present school farm facilities:

1. Provide more security to help eliminate damage and destruction of present property.
2. Fence the school farm to permit pasturing with livestock to help eliminate losses.

3. Storage facilities should be constructed for feed, fertilizer, spraying materials, and tools.
4. Rural recreational facilities should be developed by the construction of nature trails.
5. Permanent housing shall be provided for farm laborers.
6. Insulate water pipes to prevent freezing.
7. Initiate a turf grass demonstration plot.
8. Blacktop or concrete driveways and walkways to farm buildings and supporting structures should be added.
9. Install permanent irrigation systems.
10. Add more land to the present facility in order to make it more functional and to permit more student use.
11. Establish a school farm fund to provide for annual improvements and to repair and replace equipment as necessary.
12. Add test plots of various kinds to help stimulate learning.
13. Establish summer classes so the school farm has year round use.
14. Landscape the facility to make it more attractive and enchance learning by doing at the same time.

15. Level certain parcels of land to utilize more effectively the truck crop projects and other general uses.

A report developed by the Agricultural Education Department (1975) at California Polytechnic State University offered the following suggestions to overcome problems with vandalism, security, and supervision:

1. Provide an abundance of lighting.
2. Secure all storage facilities.
3. Take pictures of damage for future evidence.
4. Be familiar with insurance limits.
5. Use dogs for "barking" control.
6. Vandals are chiefly people and dogs.
7. Use signs indicating which projects belong to students.
8. Keep all loose tools, supplies, feed, etc., stored under lock and key.
9. Report all break-ins to the police immediately.
10. Grind numbers off of all locks to eliminate identification.
11. Check with administration before placing a lay person over students.
12. Do not allow private student cars on the school farm grounds.

In recognition of these numerous problems and difficulties, one might wonder if there are any definite advantages to operating a school farm. Do the advantages outweigh the disadvantages? In response to this question, it must be noted that not all vocational agriculture departments need a school farm. This decision must be carefully considered by the school administration, board of education, vocational agriculture instructor, and local advisory committee. Nevertheless, numerous advantages do exist regarding the operation of a vocational agriculture school farm. Loreen (1951), McDonald (1951), Ahalt (1951), and Snell (1955) offered the following advantages or contributions of school farms to vocational agriculture programs:

1. New crops planted can be observed by farmers.
2. The school farm can be used to introduce and demonstrate improved feeding and livestock management practices which might be observed by students and farmers in the community.
3. The school farm could provide specific work experiences for persons who might not otherwise receive the desired kind of work experience.
4. It would provide the local Future Farmers of America Chapter with facilities for carrying on group enterprises such as feeding livestock or

growing crops cooperatively.

5. The school farm may be used as a source of revenue for Future Farmers of America Chapter activities.
6. Some non-farm students will want to enroll in vocational agriculture, and the farm would provide them with facilities for carrying on a supervised farming program.
7. Improved methods of growing crops, such as producing and using certified seed can be demonstrated to vocational agriculture students and farmers in the community.
8. A specific farm for the study of records and farm management practices will be available for study for the vocational agriculture classes.
9. The school farm will provide facilities not only for the use of students in vocational agriculture, but it also will provide facilities for the high school science teacher or elementary teacher. Such units as "How Plants Grow," "Soil Formation and Conservation," "Identification of Insects," "Sanitation and Health," are examples of the many ways that instruction can be made more vivid and realistic by field trips to the school farm.

10. The school farm might supply some of the food for the school cafeteria.
11. Opportunities for rendering a service to the community and to the State College Experiment Station may be worked out. The local vocational agriculture instructor working with the experiment station personnel might provide crops for experimentation with insect or disease control or fertilizer plots.
12. The farm, being identified with the school and rendering a service to the students and to the community, will have a tendency to tie the school and community more closely together.
13. The school farm can be used to demonstrate the practicability and use of sound farming practices, procedures, and skills.
14. The school farm can be used to provide worthwhile experiences for all students, but particularly for those students who have limited facilities at home.
15. The school farm should create an active vital interest in agriculture on the part of the student body as a whole and of the agriculture students in particular.

16. The school farm can be used to provide individual supervised occupational experience programs for some pupils.
17. The school farm can be used to provide breeding services, livestock, plants, seed, etc., for pupil's individual projects.
18. The school farm provides a natural setting where the teaching of agriculture theory and practice, the "why" and "how" take place at the proper season and in the proper sequence.
19. The use of the school farm promotes the integration of theory and practice under direct teacher supervision.
20. The school farm can serve as a laboratory for all departments in the school.
21. The school farm can provide jobs and experience programs which serve as a source of income for students.
22. The school farm can serve as an excellent public relations tool for the vocational agriculture department and the vocational agriculture instructor.

The list of advantages seems endless; however, several important advantages have not yet been mentioned. Loberger

(1967) indicated that school farm activities developed self-confidence in vocational agriculture students. Bicket (1967) found that non-farm students identified occupational objectives as a result of their experiences on school farms. Apparently, the issue of developing desirable work habits has been overlooked. Could the experiences and activities on a school farm develop personal qualities such as honesty, dependability, initiative, enthusiasm, ambition, cooperation, and punctuality? One would hope so. Phipps (1972) offered these three additional advantages:

1. The school farm can provide students with worthwhile experiences and skills in agribusiness.
2. The school farm can be used to demonstrate approved agribusiness practices.
3. The school farm can be used to publicize education in the agribusiness program in the school.

A California study provided a very recent look at other advantages not previously mentioned. Dowler (1971) offered these additional advantages on the use of school farms:

1. The school farm serves as a laboratory where vocational agriculture students can participate to the fullest in developing their skills and abilities. This in turn will help students in making future career choices.

2. The school farm is an excellent facility for developing forestry plots and wild game programs.
3. Work experience projects for the handicapped and disadvantaged as well as for other students are being utilized to a greater extent where school farms are accessible.
4. The activities on a school farm help students to understand the economic aspects of agriculture and business operations.
5. The school farm expedites greater learning by reducing the number of field trips that ordinarily would be taken away from the school.
6. The school farm reduces the amount of traveling vocational agriculture instructors must do in supervising projects.
7. The school farm complements the work and theory in the classroom by providing laboratory experiences for those principles studied in the classroom.
8. The school farm can provide, under proper supervision, essential training and participating experiences in operating, servicing, reconditioning, and storing of farm machinery.
9. The school farm provides a source for easily accessible teaching and visual aids materials.

10. The school farm can be used to initiate and promote safety both at home and at work.
11. The school farm will strengthen the professional competencies of the vocational agriculture instructor.
12. The school farm can serve as an instructional unit for elementary school groups, Boy Scouts, and local civic groups.

According to several authors, numerous advantages do exist in regard to the existence of a school farm. It is imperative that both the positive and negative aspects be analyzed before attempting to reach a conclusion. Merely reviewing these advantages and disadvantages is not a sufficient basis however for making a final decision as to whether or not a school farm should be developed. The literature has confirmed that still other considerations must be reviewed. The general guidelines for the use and operation of the facility should be discussed in an attempt to reach a consensus on operation guidelines and primary function of the school farm. Phipps (1972) offered these guidelines as suggestions for operation:

1. The school farm should be operated for educational purposes.
2. Profits from the school farm should be of minor importance.

3. The school farm should not be operated solely for providing funds for the FFA Chapter.
4. Student labor should not be exploited.
5. Students should be paid a fair wage for work they do on the school farm before and after school.
6. Excessive field trips to the school farm should be avoided.
7. The vocational agriculture instructor should not have a financial interest in the school farm.

A more recent article by Duff (1970) suggested that the local board of education should finance the school farm and allow the vocational agriculture instructor to direct its operation. Duff also suggested that the school farm be put to its optimum use in the curriculum. Furthermore, it was apparent that neighbor relations be considered in the use of a school farm. The summary report on school farms developed by the Agricultural Education Department (1975) at California State Polytechnic Institute stressed the importance of keeping good neighbor relations, especially if the school farm is to be located in town. This report offered the following suggestions:

1. Good principles of construction should be used at all times.

2. Landscaping activities should be included to keep the farm attractive.
3. The scope of the facility in an urban area must be monitored so that noise, loose animals, odors, and flies are kept to a minimum.
4. Good maintenance practices on fences, roadways, barns, sheds, and corrals must be considered a necessity.

Puckett (1977) offered a few additional considerations. Puckett stated that total cooperation is the key to success. Businessmen, parents, teachers, school administrators and the board of education must be kept informed. Pictures or slides should be taken periodically and used to inform the community of the function of the school farm and the benefits students receive from their activities on the school farm.

Taking into account these last remarks, the specific functions of the laboratory must be determined. Obviously, the location and size of the facility will affect its use, however maximum educational benefit to vocational agriculture students should be kept foremost in mind.

The literature is somewhat vague on the actual functions of these facilities. The only comprehensive list of possible functions for a school farm from this review was found in the summarization report on school farms developed by the

Agricultural Education Department (1975) at California State Polytechnical Institute. This report offered the following 15 functions:

1. To complement the work of the classroom by providing laboratory experiences for those principles studied in the classroom.
2. To provide a broad instructional program leading to the application of science and improved practices in the production of food and fiber.
3. To provide, under proper supervision, essential training and participating experience in operating, servicing, reconditioning and storing of farm machinery, including safety practices.
4. To provide a more practical and satisfactory follow-up on jobs done than can be accomplished in the limited time of a field trip. This would include such items as castration, docking, dehorning, pruning, grafting, etc.
5. To provide practical problems in production and record keeping for classroom farm management.
6. To provide supervised farming facilities for those who do not live on farms, making possible:
   a. An enriched instructional program.
   b. A means of providing farm employment and work

experience to those in need of such training.

c. A place to conduct a supervised practice program.

d. Participation in cooperative projects.

7. To provide more satisfactory and diversified supervised practice facilities than are available on some students' home farm, for livestock, poultry, crops, horticulture, and other farm practices.
8. To provide a source of teaching and visual aids materials.
9. To make it possible to expedite practices that are difficult to initiate on the home farm.
10. To centralize breeding operations for future projects.
11. To demonstrate new enterprizes and varieties, and particularly to demonstrate their place and adaptability to types of farming in the area.
12. To initiate and promote safety at home and at work.
13. To provide facilities for pooling purchases of project animals, thus saving instructor's time in purchasing project animals.
14. To strengthen the professional competence of the teacher and the complete instructional program.
15. To provide an opportunity to teach safety and safe practices.

16. To provide an instructional and observation unit for farmers, elementary school groups, Boy Scouts, civic groups, and others.

Interestingly enough, most of these functions could be recognized as possible advantages for a school farm. The decision as how to classify them is not important as long as all considerations have been taken into account.

How then, should one proceed at this point in the process? Actually, the literature is somewhat unclear due to the differences in the individual program situations. It would seem logical that most of the macro stages of planning have been discussed. In launching further work on the implementation process, the micro level of planning by the vocational agriculture instructor and others should commence. Therefore, given the specific guidelines or constraints from the previous discussion, it is now the responsibility of the individual vocational agriculture instructor to fit the school farm into the comprehensive vocational agriculture program. This indicates that the instructor should review possible student activities, determine which are feasible and non-feasible, and implement those activities which would be of greatest benefit to the students. Timing and sequencing the curriculum and related activities is also extremely

important. This process is different for each and every program, and therefore is not included in this review.

As one would suspect, the creativity of the vocational agriculture instructor will enhance the development of worthwhile student activities. From the literature, the scope of these activities appears to be somewhat endless. Thorp and Swanson (1978) and McCarthy (1980) recognized that student activities should supplement all phases of the vocational agriculture curriculum, including the FFA program. Probably the most comprehensive list of activities is presented by Phipps (1972) in the Handbook of Agricultural Education in Public Schools. Phipps provided the following as possible school farm activities:

1. Construction of agricultural buildings.
2. Operation of machinery and equipment.
3. Establishment of a nursery plot.
4. Establishment of a turf demonstration plot.
5. Development of a woodland demonstration plot.
6. Development of a wildlife demonstration plot.
7. Development of an agricultural recreation demonstration plot.
8. Implementation of a garden demonstration plot.
9. Implementation of a landscaping or ornamental horticulture demonstration area.

10. Development of a fruit culture demonstration plot.
11. Development of a pruning and grafting demonstration plot.
12. Development of a plant breeding demonstration plot.
13. Development of a Christmas tree planting area.
14. Development of a plant propagation demonstration plot.
15. Development and construction of a pond.
16. Development and use of nature trails.
17. Construction and use of cold frames.
18. Construction and use of a lath house.
19. Construction and use of a greenhouse.

By no means is this a complete list. A great diversity of activities is found in all phases of agricultural education. Several other articles presented ideas and activities that could possibly be implemented in the animal science area. Nelson (1972) suggested the following items as possible student activities in relating to skills in animal science:

1. Pig castration
2. Farrowing
3. Ear notching
4. Lambing
5. Marking animals

6. Iron shots
7. Branding
8. Hoof trimming
9. Foot care
10. Dehorning
11. Castration
12. Sheep shearing
13. Calving
14. Foaling
15. Small animal care
16. Grooming
17. Animal restraint techniques
18. Artificial insemination
19. Judging livestock
20. Fitting livestock for show
21. Feed experiments

Herren (1976) offered even additional activities relating to skills in the animal science area. Herren suggested that activities on the school farm should involve halter breaking, worming, vaccination, rodent and fly control programs, and livestock shows.

A more unique activity was presented by McCracken and Pulfer (1978). They stressed the value of a cooperative swine project. In this project, vocational agriculture

students establish a board of directors and a cooperative manager. These students established the work and feeding schedules, while other vocational agriculture students kept records on rate of gain and feed efficiency. In this case, the vocational agriculture instructors were also members of the cooperative.

A more recent article by Dietz (1980) revealed certain animal science activities carried out on a school farm in an Illinois vocational agriculture program. In this program, vocational agriculture students have managed and operated a 240 acre rental farm. Freshman students have been encouraged to select a sheep project from the 50 head owned and housed on the farm. Students have been provided opportunities to show both ewes and lambs at the FFA Fair each summer. Finally, a gilt chain was initiated several years ago so interested students could receive experiences in swine production.

Another extensive animal science laboratory program was discussed by Rosser (1980). This school farm included 40 head of cattle on feed, 50 market barrows, 20 lambs, and several beef and dairy cattle. A few years ago the need for a livestock pavilion was recognized, and soon afterwards was constructed. Each summer, an area extension livestock specialist is brought in to put on a livestock evaluation

clinic. Not only do vocational agriculture students participate, but also local 4-H groups, parents, teachers, young farmers, and adults in the community. Student projects have been used for the morning evaluation clinic, and a livestock judging contest has been conducted in the afternoon. Rosser (1980) stressed the importance of strong summer programs and the use of these facilities for summer teaching activities.

Equally important are the activities that relate to the agronomy area. Morton (1950) revealed the benefits vocational agriculture students receive in carrying out extensive activities on small grains. Working cooperatively with local experiment station, one vocational agriculture department conducted a small grains testing program. Different fertilizer applications and varieties were tested, concluding with a small grain field day with area farmers. Finally, evening classes were offered on topics of land preparation, seeding, disease and insect control, harvesting, storing, and soil conservation.

The school farm has provided numerous activities for skill development in the agricultural mechanics area. Bearden (1971), Rosser (1980), and McCarthy (1980) all agreed that "learning by doing" agricultural mechanics activities are commonly found on the school farm. Such

activities have included the areas of carpentry, concrete, plumbing, electricity, welding, soil and water management, machinery maintenance, and safety.

Depending on the area, one may find a need to develop learning activities in horticulture. Spearin (1950) and Ramsbury (1950) both advocated the useful possibilities of garden plots or truck farming. Furthermore, Poucher (1952) discovered that many school farms in Florida were producing plants that were sold to the community to provide experiences for students and a source of income for the local FFA Chapter. Puckett (1977) suggested the possibility of developing an orchard. In his article, Puckett noted that a tremendous amount of practical skills can be taught with student activities related to the operation of an orchard.

An overriding present day concern of several vocational agriculture instructors nationwide has dealt with the topic of conservation. Walker (1968) offered several ideas that have proved successful for vocational agriculture instructors. In one activity, 14 acres were developed through a specially funded program for underachievers. Their conservation activities included a native grass plot, the construction and upkeep of nature trails, tree identification, and work with wildlife conservation.

According to Stump (1976), a very extensive conservation

program was initiated on a school farm in northeast Indiana. In this unique situation, the school built a 230 acre farm which was adjacent to a state fish and game reserve. An outdoor laboratory of crops was developed, and later a woodland and wasteland laboratory was developed. Junior high school students developed a two mile long nature trail in which specific locations provided information on wildlife, soil, insects, and ecology. Later, a 125 foot swinging bridge and log cabin were constructed. A camping area was then developed and maintained by students enrolled in conservation studies. Finally, a six-acre area was fenced with a seven foot high fence for the study of large game animals. Junior high and senior high students alike have been extremely involved with this school farm. Trees have been planted, wildlife shrubs established, and foot bridges constructed. Students now have the opportunity to take wildlife study trips on overnight campouts. Interestingly enough, the study trips were not the end to student learning activities. Students have acted as tour guides for approximately 2000 people who tour this facility each year. Alfalfa weevil research has been conducted in cooperation with Purdue University, plant growth studies have been conducted, and 5000 Scotch pines were established for a Christmas tree plot. Students have gained worthwhile

experiences in planning, financing, wildlife management, irrigation, and outdoor recreation activities. Trapping and photography interests have soared along with interests in taxidermy.

In summary, the number of student activities seems endless, and may well be limited by only teacher creativity. The activities discussed were carefully selected to fit individual situations and program needs. Finally, numerous benefits received by vocational agriculture students from their activities on school farms have been identified.

Procedural Considerations for the Use and Operation of a School Farm in the High School Vocational Agriculture Program

With the broad guidelines now established in the macro planning stage, the vocational agriculture instructor must now answer some final questions concerning the operational procedures of the school farm. The ultimate goal of the school farm is to benefit the vocational agriculture stuents, however, safety must be the first and foremost consideration.

The vocational agriculture instructor must now forsee the actual use and operation of the farm, its probable location, its size, and the numerous student activities to be conducted. Potential problems regarding safety must be

recognized as the physical development of the school farm begins. Tullock (1968) identified several safety precautions as they relate to student involvement on a school farm. Tullock stated that adequate safety equipment must be provided for the safe storage, handling, and application of agricultural chemicals. Goggles, gloves, and proper protective clothing are a necessity. Furthermore, students will operate agricultural equipment, handle flammable materials, and of course, learn and practice skills in animal science. Safety must be integrated into all phases of instruction. Students must be taught the safe use and operation of equipment on the school farm, and facilities for safe storage of numerous items must be designed into the facility.

Safely designed livestock facilities are a major priority on any school farm. Fences must be constructed and maintained so there is no danger of animals escaping and damaging property. The vocational agriculture instructor must also realize that classes will be conducting field trips to the school farm to learn basic skills in livestock production. The livestock housing and facilities must be designed so that young animals and parent stock can be easily separated and secured. On the other hand, the facilities should be adequate to handle and work with large animals. It is the duty of the vocational agriculture instructor to ensure

that the school farm is a safe place for learning to occur. The design and location of the buildings, fences and gates, driveways, holding facilities, pens and corrals, waterers, and loading facilities must be carefully planned to ensure this safe environment.

Interestingly, there is a difference of opinion regarding the extent and responsibility for large capital purchases. Cullen and Lawrence (1978) stated that custom work should be used whenever possible to reduce the capital investment of large machinery. Other school systems, however, have allowed and encouraged the vocational agriculture departments to purchase necessary agricultural equipment for their school farms.

The total financial operation of the school farm provides a better basis for answering this financial question. Hamlin (1949) stated that the local school boards should expect the farm to at least operate on a break-even basis. In a study of school farms in the North Atlantic Region, Ahalt (1951) revealed that approximately one-half of the school farms were depositing profits for future purchases of additional equipment. Snell (1955) on the other hand, stated that profits from school farms should normally not be used for purchasing facilities, supplies, and equipment. Snell believed that these profits should be set

aside in a reserve fund, and that the school district should incur the expenditures for facilities, buildings, and equipment. Furthermore, Snell stated that the school farm should primarily be used for instruction, therefore the vocational agriculture department should not assume obligations for financing the school farm through profits. It is the duty of the vocational agriculture department to assume the responsibility for enterprizes on the farm.

Another significant factor pertaining to capital expenditures relates to the use of credit by the department. Bryant (1960) stated that credit from a local lending institution is a valuable learning experience. Other studies, however, have indicated that the use of credit should be discouraged or at least kept to a minimum.

The question at hand concerning credit is still not answered. In a summary report developed by Dowler (1971), a diverse use of profits from school farms in California was reported. In certain cases, these profits were deposited directly into a school farm account, while in other cases the profits were deposited in a revolving project account, the FFA account, or a general school account earmarked for the vocational agriculture department. More importantly, it was noted that the issuance of bonds to operate a school farm is not legal. It has therefore been

the duty of the school districts to meet the financial obligations for purchasing equipment. Finally, it was noted that the school should definitely establish a separate school farm account for the deposit of the school farm's profits.

In summary, it appears from the literature that the school district has a responsibility to provide the adequate equipment and facilities to implement the learning environment of the school farms. Secondly, it appears that most persons believed that the school farm should not be operated on a profit basis alone, rather, the profits should be deposited into a special account for later use. Again, it is the duty of the vocational agriculture instructor to determine the safe design of the facility, the facility needs to benefit the students, and establish procedures with the school administration to ensure that adequate finances are available.

At this point in the development of the school farm, the vocational agriculture instructor must formulate the basic policies regarding the operation of the school farm. Without prior experience, the instructor should formulate these policies with the aid of an advisory committee (Phipps, 1972). Phipps noted that the policy statement should be quite detailed and should contain statements on each of the

following topics:

1. Purposes of the school farm.
2. Who should manage the farm.
3. Student involvement in management of the school farm.
4. Student participation in the physical operation of the farm.
5. Management responsibilities of the vocational agriculture instructor, advisory council, school authorities, students, and possibly a farm manager.
6. Where the profits should be deposited and how they should be used.
7. What capital investments should be made.
8. Arrangements regarding financial losses.

Phipps noted that this overall policy statement should then be submitted to the proper school authorities for their approval. Finally, the policy statement should be duplicated and made available to pupils, parents, and the community.

Without a doubt, there are still other records, policies, and agreements that the vocational agriculture instructor must develop. Shami (1966) substantiated this point by stating that complete records should be kept by the instructor and audited on a regular basis. Finally, a policy on scheduling time on the school farm must be developed to

insure that an instructor supervises all student activities.

A report on school farms developed by the Agricultural Education Department (1975) at California State Polytechnic University recommended four other policies that merit consideration for individual student projects on the school farm:

1. An agreement form be developed and signed so that students have definite guidelines on the school farm use.
2. Monthly or weekly reports should be mailed to parents regarding students' involvement on the school farm.
3. The use of student managers on the school farm.
4. Complete and up-to-date records of individual student projects be required.

Finally, it was noted that the following recommendations be used on the student agreement:

Students must agree to:

1. Keep the pens and surrounding area clean at all times.
2. Keep fences and shelters in good condition.
3. Bring in no animals without the approval of the vocational agriculture instructor.
4. Allow other students to use livestock for laboratory work.

5. Feed and care for the animals in a suitable manner.
6. Remove the animals from the school farm at anytime if asked to do so by the vocational agriculture instructor.
7. Furnish the feed.
8. Pay a fair rental fee based upon the number of animals and facilities used.

These policies, procedures, and records have left little doubt as to the responsibilities of the various parties involved. Furthermore, these reports have aided in alleviating misunderstanding and confusion between the school administration, vocational agriculture instructor, students, parents, and the community. With time and experience, vocational agriculture instructors have recognized the many uses and values of a school farm. Vocational agriculture students have benefitted from their experiences and related activities as we would expect.

Throughout the literature, the importance of good public relations for the vocational agriculture program has been emphasized. The operation of a school farm has been used as another means for promoting the vocational agriculture program. Dowler (1971) offered the following suggestions for increasing the community's interest in the farm:

1. Publicize what is currently being done in regard to

student use. Explain how the school farm supplements the classroom and laboratory practices.

2. Invite the news media to visit the farm so feature stories may be prepared.
3. Inform local service clubs of the need for funds to support individual and group projects.
4. Keep up the general appearance at all times.
5. Be sure accurate records are maintained on all activities conducted on the school farm.
6. Add equipment whenever possible to enhance student learning.
7. Increase services to the community whenever possible by inviting parents and community leaders to view the program during Farm-City Week or National FFA Week.
8. Invite elementary teachers to bring their classes to visit items of interest. This utilization allows the facility to reach its greatest potential.

Finally, it is important to note that public relations have been enhanced when the facility has been landscaped and kept attractive to all visitors. It is important to periodically show the farm to the administrators and other faculty members. Similarly, student leaders should

be used to explain the value of a school farm to the entire community.

One of the overriding concerns of many vocational agriculture instructors has been the justification of their summer programs and salary. The use and operation of a school farm definitely merits the twelve-month contract due to the year-round activities and responsibilities of the vocational agriculture instructor and students. Ramsburg (1950) noted that teaching and learning take place throughout the summer and the necessity for the summer program is evident. The vocational agriculture instructor must supervise the farm, aid students with management decisions, carryout policies and activities for summer use, and coordinate maintenance activities on the farm. Rosser (1980) offered even more insight into the summer responsibilities of the vocational agriculture instructor on the school farm. Rosser stated that the instructor should be present to offer advice on animal health, nutrition, and routine management of livestock. Furthermore, the instructor is needed to assist in selection of animals, dehorning, trimming feet, weighing animals, and other similar skills. Rosser (1980) finally noted that several program activities should be held on the school farm during the summer. The school farm is an excellent location to hold one of the FFA summer meetings,

a parent-greenhand meeting, and a summer showmanship clinic.

The final question facing the vocational agriculture instructor is how to make optimium use of a school farm by allowing its use to other groups. Not only has this aided in promoting the vocational agriculture program, but has offered a comprehensive laboratory to other students in the entire school system (McDonald, 1951).

Similarly, Tullock (1968) stressed the value of using resource persons on the school farm. Their involvement has stimulated learning for both the students and teachers. Tullock believed that when resource persons are used for school farm activities and functions, students are more likely to consult them in the future. Finally, Puckett (1977) stressed the use of resource persons including the Forestry Service, the Soil Conservation Service, and the State Department of Agricultural Education. Puckett noted that numerous outside groups should be involved on the school farm by such means as a BOAC (Building Our American Communities) program, the development of nature trails, or just the presence and use of a picnic area.

Yes, the value of a school farm can be tremendous and the benefits are insurmountable. One must remember that the foremost goal of such a facility is to benefit the

vocational agriculture students. Throughout the planning and implementation stages, this key point should be stressed. Guidelines, suggestions, and recommendations for the development of a successful school farm and the benefits that can be anticipated from use of such a resource have been summarized in this chapter to provide a theoretical base for this study.

CHAPTER III.

DESIGN AND METHODOLOGY

The central purpose of this study was to determine the benefits vocational agriculture students receive from their involvement in school farm activities. This chapter presents the research procedures used in the following sections: (1) design, (2) population and sample, (3) instrumentation, (4) data collection, and (5) statistical analyses.

Design of the Study

The design used for this study was an ex post facto design. A design of this type does not create a treatment, but rather observes or examines the effects of a natural occurring treatment after the treatment has occurred. In other words, the researcher does not have control of the independent variable.

Frequently, ex post facto research is used in educational research; however, it does possess some limitations. According to Tuckman (1978), there are three major weaknesses to this design which are outlined as follows:

1. It is not always possible to assume a simple causative relationship between variables.
2. The design lacks the ability to manipulate the independent variable.

3. The possibility of misinterpreting the cause and effect relationship exists.

Even though these weaknesses of this design are recognized, the ex post facto design has been used extensively as a research tool in education.

The Population and Sample

The population used in this research study consisted of the high school vocational agriculture programs in the states of Iowa, Kansas, Missouri, and Nebraska during the 1980-81 school year identified as having school farms.

In a previous study conducted by Rutachokozibwa (1981), an informational questionnaire was mailed to 270 Iowa secondary vocational agriculture instructors in order to determine the extent of use of school farms in Iowa's vocational agriculture programs. Two hundred twenty-eight (84.4%) responded to the questionnaire; 128 stated that their programs were utilizing a school farm. Rutachokozibwa (1981) randomly selected 50 of these departments for his study. The remaining 78 departments operating school farms not used in Rutachokozibwa's study were considered as potential participants for this study.

In the winter of 1981, the researcher sent a one-page informational questionnaire (Appendix A) to these

78 vocational agriculture instructors in Iowa. The same questionnaire was also sent to 161 Kansas vocational agriculture instructors, 229 Missouri vocational agriculture instructors, and 145 Nebraska vocational agriculture instructors. The Agricultural Teachers Directory (1980) was used to identify the secondary vocational agriculture instructors in this four state area. The purpose of this questionnaire was four-fold: (1) to identify the programs which were presently operating school farms, (2) to ascertain the scope and basic uses of the school farm, (3) to secure the name of the vocational agriculture instructor with major responsibility for the school farm, and (4) to secure the name of the school administrator with major responsibility for the school farm.

Fifty-two (67%) of the 78 informational questionnaires were returned by Iowa instructors of which 51 stated that their programs were utilizing a school farm component. Forty-seven (29%) of the 161 Kansas instructors responded, but only 12 stated that their programs were using a school farm. In Missouri, 75 (33%) of the 229 instructors responded of which 35 reported that they were using a school farm. Finally, 51 (35%) of the 145 Nebraska instructors responded to the informational questionnaire; 15 stated that their

vocational agriculture programs utilized a school farm.

Finally, those schools with farms were alphabetized by state, and a sample was selected from each of the four states. The selected sample of 68 consisted of 26 Iowa programs, 12 Kansas programs, 18 Missouri programs, and 12 Nebraska programs (Appendix B).

Instrumentation

Two instruments were developed to secure perceptions of the benefits vocational agriculture students receive from their involvement in school farm activities. One of these questionnaires was developed for the school administrator with major responsibility for the school farm. The second questionnaire was developed for the vocational agriculture instructor. In the case of a multi-teacher program, the questionnaire was sent to the vocational agriculture instructor with major responsibility to the school farm. A copy of the cover letters and questionnaires are exhibited in Appendix C.

Part I of both questionnaires contained the same 53 items. These benefit items were established from the six basic objectives for vocational and technical education in agriculture. The six objectives and contributing objectives were listed in Chapter I. Both the instructors and

administrators were asked to rate each of the 53 items on a scale of one (no benefit) through nine (great benefit).

Part II of both questionnaires contained items relating to personal and situational characteristics of the instructors and administrators. Some additional items in Part II related to the situational characteristics of the school farms.

Data Collection

Copies of the cover letter and questionnaire were mailed to the high school administrators and vocational agriculture instructors on April 13, 1981. Fifty-seven percent of the administrators and 59 percent of vocational agriculture instructors had responded within two weeks. The non-respondents were mailed a second cover letter and questionnaire. Copies of the cover letters for the second mailing are exhibited in Appendix D.

The cut-off date for receiving the second set of questionnaires was established as May 15, 1981. By this time, 51 (75%) of the administrators and 50 (74%) of the vocational agriculture instructors had responded. However, ten of the administrators' questionnaires and five of the instructors' questionnaires were not usable. In these cases, either the instructors or the administrators had returned an unanswered questionnaire stating that the school

farm was not presently being used by the vocational agriculture department. Therefore, the usable response rate in this study consisted of 41 administrators and 45 vocational agriculture instructors.

Statistical Analyses

The returned questionnaires from administrators and vocational agriculture instructors were coded and punched into IBM cards. The data were analyzed using the Statistical Package for the Social Sciences (SPSS) at the Computation Center at Iowa State University. The following statistical procedures were used to analyze the data:

1. Frequency counts and percentages were computed on the demographic data.
2. Group means and standard deviations were computed for all questions.
3. Pearson Product Moment Correlation Coefficients were computed to determine if significant relationships existed between pairs of variables.
4. Analysis of variance by the six objectives of vocational education in agriculture were computed to detect significant differences between instructors' and administrators' mean scores.

CHAPTER IV.

FINDINGS AND DISCUSSION

A summary of responses provided by vocational agriculture instructors and administrators from the states of Iowa, Kansas, Missouri, and Nebraska is presented in the following pages. Findings are arranged under the following headings: (1) respondent background information, (2) student enrollment information, (3) school farm information, (4) student benefits from agricultural activities on the school farm, (5) Pearson Product Moment Correlations, and (6) analysis of variance by the six objectives of vocational education in agriculture.

Respondent Background Information

Information in Tables 1, 2, and 3 present data regarding the 45 vocational agriculture instructors who participated in the study. As observed in Table 1, 95.6 percent of the departments were single or two-teacher departments. As noted in Table 2, 42.5 percent of the instructors have taught vocational agriculture five years or less, and 64.7 percent have taught ten years or less. Furthermore, only 19.8 percent of the instructors possessed over 15 years of vocational agriculture teaching experience with a mean years of teaching experience of 9.578.

Table 1. Number and percentage of vocational agriculture instructors in the school system

Number of Vocational Agriculture Instructors	Frequency	Percentage
1	35	77.8
2	8	17.8
3	1	2.2
4	0	0.0
5	1	2.2
	45	100.0

Mean = 1.311
S.D. = 0.733

Table 2. Number and percentage of vocational agriculture instructors indicating the number of years they had taught vocational agriculture

Years	Number of Vocational Agriculture Instructors N=45	Percentage
1	3	6.7
2	3	6.7
3	7	15.7
4	4	9.0
5	2	4.4
6	3	6.7
7	3	6.7
8	1	2.2
9	1	2.2
10	2	4.4
11	0	0.0
12	3	6.7

Table 2. (Continued)

Years	Number of Vocational Agriculture Instructors N=45	Percentage
13	1	2.2
14	2	4.4
15	1	2.2
16	0	0.0
17	1	2.2
18	1	2.2
19	0	0.0
20	1	2.2
21	1	2.2
22	0	0.0
23	1	2.2
24	1	2.2
25	1	2.2
26	0	0.0
27	1	2.2
32	1	2.2
	45	100.0
Mean = 9.578 S.D. = 8.004		

Data in Table 3 reveal information concerning the instructors years of experience with a vocational agriculture school farm. As shown, 46.9 percent of the instructors had been responsible for the operation of a school farm three years or less. Also, 55.8 percent of the instructors had

Table 3. Number of vocational agriculture instructors and percentages regarding the number of years the vocational agriculture instructor has been responsible for the operation of a school farm

Number of Years Responsible for a School Farm	Number of Instructors N=45	Percentage
1	4	8.9
2	7	15.7
3	10	22.3
4	3	6.7
5	1	2.2
6	4	8.9
7	2	4.4
8	2	4.4
9	1	2.2
10	1	2.2
11	1	2.2
12	3	6.7
13	0	0.0
14	1	2.2
15	2	4.4
16	1	2.2
17	0	0.0
18	0	0.0
19	0	0.0
20	0	0.0
21	0	0.0
22	0	0.0
23	1	2.2
24	0	0.0
25	0	0.0

Table 3. (Continued)

Number of Years Responsible for a School Farm	Number of Instructors N=45	Percentage
26	0	0.0
27	1	2.2
	45	100.0
Mean = 6.556 S.D. = 5.887		

been involved with the school farm component only five years or less, while only 4.4 percent of the instructors have operated a school farm over 20 years.

Data presented in Table 4 reveal information concerning administrators who participated in the study. As shown, the mean years of experience for the high school administrators was 12.293 with administrators' involvement in vocational agriculture programs and school farms being considerably less. The mean years of administrative involvement with vocational agriculture programs was 9.634 years, and the mean years involvement with school farms was only 5.927 years. Twenty six (63.4%) of the administrators had been involved with the school farm concept five years or less.

Table 4. Characteristics of school administrators in the sample

Range (years)	Years Employed as a High School Administrator		Years Employed as a High School Administrator Where Vocational Agriculture was Offered		Years Involved With the School Farm	
	Frequency	%	Frequency	%	Frequency	%
0-5	9	22.0	16	39.0	26	63.4
6-10	10	24.4	8	19.5	7	17.1
11-15	9	22.0	7	17.0	6	14.6
16-20	9	22.0	8	19.5	2	4.9
21-25	3	7.2	1	2.5	0	0.0
26-30	0	0.0	1	2.5	0	0.0
31-35	1	2.4	0	0.0	0	0.0
	41	100.0	41	100.0	41	100.0
	Mean = 12.293 S.D. = 7.491		Mean = 9.634 S.D. = 7.098		Mean = 5.927 S.D. = 5.169	

Data in Table 5 reveal still further information in regard to administrator experience and involvement with agriculture. While only two of the 41 administrators (4.9%) had previously taught vocational agriculture, nearly one-half (48.8%) had farmed part-time or full-time. Further, 36.6 percent had been employed by an agribusiness or some type of agricultural agency.

Table 5. Administrator involvement in agriculture/agribusiness independent of the role of administration

Factor of Involvement	Yes	%	No	%
Former vocational agriculture instructor	2	(4.9)	39	(95.1)
Farmed full-time or part-time	20	(48.8)	21	(51.2)
Employed in an agribusiness or agricultural agency	15	(36.6)	26	(63.4)
Son or daughter enrolled in vocational agriculture	2	(4.9)	39	(95.1)
	(N=41)			

Student Enrollment Information

Mean total enrollment in respondents' high schools is presented in Table 6. It was observed that the mean high school size (grades 9-12) was 331.829 students. Further, 34.2 percent of these schools had enrollments of 101 to 200 students. These smaller high schools may quite possibly represent the smaller rural high schools in which the school farm component is more prevalent. Finally, this table revealed that only 14.6 percent of the high schools had an enrollment exceeding 500 students.

Data in Table 7 provide information concerning the number of vocational agriculture students in their respective departments. Since 95.6 percent of the departments were

Table 6. High school enrollment (grades 9-12)

Student Enrollment	Frequency	Percentage
0-100	1	2.4
101-200	14	34.2
201-300	8	19.5
301-400	7	17.1
401-500	5	12.2
501-600	2	4.9
601-700	0	0.0
701-800	3	7.3
801-900	0	0.0
901-1000	1	2.4
	41	100.0

Mean = 331.829
S.D. = 216.909

single or two-teacher departments, it is not surprising that the mean number of vocational agriculture students was 61.578. This table reveals that 41 of the 45 departments (91.2%), had a vocational agriculture student enrollment of 90 or less.

Table 7. Number of departments and percentages regarding the number of high school vocational agriculture students in the department

Range	Number of Departments	Percentage
1-30	7	15.6
31-60	21	46.7
61-90	13	28.9
91-120	1	2.2
121-150	0	0.0
151-180	2	4.4
181-210	0	0.0
211-240	0	0.0
241-270	0	0.0
271-300	1	2.2
	45	100.0
Mean = 61.578 S.D. = 44.620		

Data presented in Tables 8 and 9 disclose information regarding the number and percentages of farm and non-farm students in the vocational agriculture program. It was revealed from these two tables that the mean enrollment of farm students was 39.6, and the mean enrollment of non-farm students was a surprising 21.7 students. Information in Table 8 revealed evidence of the typical single and two-teacher programs in that 84.5 percent of the programs had 60 or less farm students, while only one department had an

enrollment of farm students greater than 100. From Table 9, 77.9 percent of the departments had a non-farm enrollment of one to 20 students with a mean of 21.7 students.

Table 8. Number and percentage of farm students in the vocational agriculture program

Range	Number of Departments	Percentage
1-20	8	17.8
21-40	21	46.7
41-60	9	20.0
61-80	6	13.3
81-100	0	0.0
101-120	1	2.2
	45	100.0

Mean = 39.600
S.D. = 21.697

Table 9. Number and percentage of non-farm students in the vocational agriculture program

Range	Number of Departments	Percentage
1-20	35	77.9
21-40	6	13.3
41-60	1	2.2
61-80	1	2.2
81-100	1	2.2
Over 100	1	2.2
	45	100.0

Mean = 21.667
S.D. = 42.147

School Farm Information

As revealed in the literature review, the distance the school farm is located from the vocational agriculture classroom affects its use in the vocational agriculture program. With a greater distance between the two facilities, the instructor has less opportunity to use it for field trips or class activities during the school day. One might suspect then that the closer the facility to the classroom, the greater the benefit to the vocational agriculture students. From information in Table 10, it was revealed that 84.6 percent of the school farms were located two miles or less from the classroom. Longer class periods and double class periods could aid in enhancing their use if located more than two miles from the classroom.

Information in Table 11 revealed that nearly one-third (31.1%) of the school farms were five acres or less, and over one-half (55.6%) were ten acres or less. Further, this table discloses that only 8.9 percent of the farms were over 40 acres. The mean size of the farm operated by vocational agriculture departments in this study was 22.2 acres.

Table 10. Number and percentage regarding the distance the school farm is located from the vocational agriculture classroom

Distance	Number of Departments	Percentage
1 mile or less	33	73.4
2	5	11.2
3	2	4.4
4	0	0.0
5	2	4.4
6	1	2.2
7	0	0.0
8	0	0.0
9	1	2.2
Over 9 miles	1	2.2
	45	100.0

Mean = 2.089
S.D. = 3.168

Table 11. Number of acres and percentage regarding the size of the school farm

Acres	Number of School Farms	Percentage
0-5	14	31.1
6-10	11	24.5
11-15	5	11.1
16-20	4	8.9
21-25	1	2.2
26-30	4	8.9
31-35	1	2.2
36-40	1	2.2
Over 40 acres	4	8.9
	45	100.0

Mean = 22.200
S.D. = 36.680

Data in Table 12 revealed that 31 (68.9%) of the 45 school farms did not house livestock. This is not surprising. The literature suggested that school farms are used more for teaching agronomic skills than for teaching livestock skills.

As revealed in Table 13, almost one-fourth of the departments in this study utilized persons other than the vocational agriculture instructor in supervision of students on the school farm.

The size of some school farms might substantiate the need for additional student supervision. As noted earlier, the mean size of the school farms in this study was 22.2 acres.

Information in Tables 14 and 15 revealed the vocational agriculture instructors' perceptions of the school farm concept. In Table 14, it was observed that 93.3 percent of the instructors recognized the school farm as an important teaching resource for the vocational agriculture department. Further, 86.7 percent (Table 15) of the instructors in the sample revealed that they would be responsive to initiating this concept if their respective programs did not presently operate school farms.

Table 12. Number and percentages of vocational agriculture department school farms with livestock

Response	Number of School Farms	Percentage
Yes	14	31.1
No	31	68.9
	45	100.0

Table 13. Number and percentages of vocational agriculture department school farms in which a person other than the vocational agriculture instructor supervises students on the school farm

Response	Number of Departments	Percentage
Yes	11	24.4
No	34	75.6
	45	100.0

Table 14. Number and percentages of high school vocational agriculture instructors who believe that the school farm is an important teaching resource for the vocational agriculture department

Response	Number of Teachers	Percentage
Yes	42	93.3
No	3	6.7
	45	100.0

Table 15. Number and percentages of high school vocational agriculture instructors who would be responsive to initiating the school farm concept if their department did not presently operate a school farm

Response	Number of Teachers	Percentage
Yes	39	86.7
No	6	13.3
	45	100.0

A similar and quite favorable viewpoint concerning the school farm concept was offered by administrators. From Table 16, it was noted that 92.7 percent of the administrators believed that the school farm was an important teaching resource for the vocational agriculture program. Similarly, 87.8 percent of these same administrators disclosed that they would be receptive to the idea of initiating a school farm if their vocational agriculture department did not have one.

Table 16. Administrative perceptions of the school farm concept

Factor	Yes	%	No	%
School farm is an important teaching resource for the vocational agriculture program	38	(92.7)	3	(7.3)
Receptive to the idea of initiating the school farm concept	36	(87.8)	5	(12.2)
(N=41)				

The literature revealed several factors that may influence the benefits students receive from their activities on the school farm. One of these factors was the use made of school farms in the instructional program. Data in Table 17 show the rank order instructors in the sample placed on the various uses of school farms. As noted, the primary use of these facilities was to supplement the vocational agriculture classroom by serving as a laboratory. Perhaps the relatively close distance (mean = 2.1 miles) allowed the instructors to frequently use this facility as a laboratory to support classroom instruction.

Rankings two and three revealed that instructors recognized the school farm more as a place to make money for the FFA Chapter and department than as a place for non-farm students to gain supervised occupational experience.

Table 17. Rank order regarding the use of the school farm by the vocational agriculture department

Method of Use	Rank
Serves as a laboratory for the vocational agriculture classes	1
Provide a place for non-farm students to gain supervised occupational experience	3
Demonstrate new agricultural practices to the community	4
To make money for the FFA Chapter and/or the vocational agriculture department	2
Agricultural experimentation activities	5
(N=45)	

Finally, demonstration and experimentation activities were ranked fourth and fifth respectively. As noted earlier in the literature review, the vocational agriculture instructor may not possess the expertise to carryout experimentation activities. However, several successful school farms utilize demonstration activities to introduce new agricultural technology to vocational agriculture students and adults in the community.

Since only 31.1 percent of the school farms housed livestock, it is not surprising to see the results of Table 18. If one considers the operation of machinery in the agronomy area, one could conclude that the first 11 items all relate to agricultural activities associated with agronomy. Further, the activities linked to animal agriculture ranked 12, 13, and 14 based upon the frequency of use as reported by the instructors. Finally, the activities relating to horticulture were found to be the least common types of agricultural activities on school farms. It is important to note from the literature review, that the activities selected for use on the school farm will vary depending upon the size and location of the facility, the expertise of the instructor, the types of students, and needs of the community. Data in Table 18 are probably most beneficial to instructors as a guide for providing additional activities on the school farm.

Table 18. Percentage of departments utilizing common agricultural activities on the school farm

Activity	Percentage of Departments Using the Activity
Producing field crops	82.2
Operating agricultural machinery and equipment by vocational agriculture students	71.1
Conserving the soil and other natural resources	68.9
Conducting no-till or minimum tillage operations	66.7
Conducting yield tests on feed grains	66.7
Conducting fertilizer demonstrations	62.2
Conducting herbicide demonstrations	60.0
Conducting plant population and yield tests	60.0
Conducting land judging contests	53.3
Conducting insecticide demonstrations	44.4
Conducting yield tests on small grains	33.3
Raising livestock	31.1
Conducting feeding trials	20.0
Conducting livestock judging contests	17.8
Conducting landscaping activities	17.8
Conducting a Food for America program	13.3
Producing vegetables	8.9
Conducting turf grass management activities	8.9
Producing greenhouse crops	6.7
Producing small fruits	4.4
Producing fruits from fruit trees	4.4
Producing nursery crops	4.4
(N=45)	

Data in Table 19 present the activities instructors reported their students were involved in on school farms. Almost all (97.8%) of the instructors indicated that students were involved in activities on the school farm through class activities. Since many of the school farms consisted of several acres, it is not surprising to see that 24.4 percent of the departments used school farms for individual student projects. Almost two-thirds (62.2%) of the instructors reported utilizing group or cooperative projects to involve students in agricultural activities on the school farm.

Table 19. Ways in which vocational agriculture students are involved in agricultural activities on the school farm

Method of Student Involvement	Percentage of Departments Responding Yes
Vocational agriculture class activities	97.8
Group or cooperative ownership of livestock or crops	62.2
Individual student ownership of livestock or crops	24.4
(N=45)	

Students' primary means for obtaining supervised occupational experience as reported by instructors in the sample are presented in Table 20. Two-thirds of the vocational agriculture students utilized their home farm as the primary site for obtaining supervised occupational experience. Almost 20 percent of the students received supervised occupational experience by means of placement in a non-farm agricultural business or on farms. Placement-type experience programs may be heavily used, in addition to school farms, as sites for non-farm students to gain supervised occupational experience. Finally, instructors in the sample reported that 12.3 percent of their students received their primary supervised occupational experience through school laboratories; 5.6 percent from the school farm, 5.0 percent from the agricultural mechanics laboratory, and 1.7 percent from the department's greenhouse. As the percentage of non-farm enrollment increases in vocational agriculture, the use of facilities at school for students' supervised occupational experience programs may increase.

Table 20. Percentage of vocational agriculture students with their primary means of obtaining supervised occupational experience

Method of Obtaining Supervised Occupational Experience	Percentage
Production of livestock or crops on the home farm	66.9
Employment in a non-farm agricultural business	10.2
Employment on a farm other than the home farm	9.5
Work on the school farm	5.6
Work in the agricultural mechanics laboratory at school	5.0
Work in the greenhouse at school	1.7
Involvement in exploratory activities on a farm or in an agribusiness (no pay)	1.1
(N=45)	100.0

Student Benefits from Agricultural Activities on the School Farm

Data from Table 21 present the means, standard deviations, and mean ranks for the 53 student benefits received from agricultural activities on school farms considered in this study as perceived by instructors, administrators, and the combined sample. Items one through 11 in Table 21 relate to occupational objective I (agricultural production), items 12-29 relate to occupational objective II (agribusiness), items 30-35 relate to occupational objective III (careers), items 36-42 relate to occupational objective IV

(placement and advancement), items 43-47 relate to occupational objective V (human relations), and items 48-53 relate to occupational objective VI (leadership). (The sample objectives were listed in Chapter 1). The purpose of this research was not to test for significant differences between instructors and administrators on each of the 53 benefit items. Rather, the research was designed to test for differences between the two groups by benefit clusters that correspond to the six occupational objectives for vocational agriculture. These analyses are presented later in this chapter.

There are, however, some interesting observations that can be made from the data in Table 21. Instructors rated 46 of the 53 items above five, mid-point on the nine-point rating scale. Similarly, administrators rated 40 of the 53 items above five. Further, 42 of the 53 items were rated above five by the combined sample of instructors and administrators.

Instructors rated the item, "generates increased student participation in the FFA," highest, with a mean score of 6.844. The highest mean score for the administrators' perceptions of student benefits from school farm participation was for the item, "generates circumstances for students to market agricultural products." The mean for this item was

6.634. Instructors and administrators alike rated the item, "develops competencies in livestock production needed in non-farm agribusiness occupations," lowest, with a mean score of 4.000 and 4.293, respectively.

Table 21. Means, standard deviations, and mean rankings of the benefits vocational agriculture students receive from agricultural activities on a school farm

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Assists students in developing skills necessary to obtain a start in farming	M[a]	6.578	6.220	6.407
	SD[b]	1.631	1.943	1.785
	R[c]	6	10	9.5
Teaches students to produce agricultural products efficiently	M	6.556	6.390	6.477
	SD	1.470	1.686	1.570
	R	7.5	8	7
Teaches students to efficiently market agricultural products	M	6.356	6.098	6.233
	SD	1.861	1.715	1.787
	R	16	16.5	15
Allows students to understand the financial requirements of a farm business	M	6.667	6.122	6.407
	SD	1.624	1.792	1.718
	R	5	15	9.5
Develops an understanding of the need for efficient mechanization in agriculture	M	5.822	5.732	5.779
	SD	1.838	1.898	1.856
	R	29	27	26

[a]M designates group mean.
[b]SD designates standard deviation.
[c]R designates rank of the activity based on mean scores.

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Allows students to make management decisions based upon an analysis of farming records	M	6.467	6.415	6.442
	SD	1.604	1.581	1.584
	R	13.5	6.5	8
Teaches students to conserve soil and other natural resources	M	6.422	6.195	6.314
	SD	2.137	2.040	2.082
	R	15	11.5	12.5
Allows students to develop effective human relation skills	M	5.844	4.927	5.407
	SD	2.153	2.138	2.182
	R	28	42	36
Teaches students to make efficient use of machinery, equipment and other physical resources of the farm business	M	5.689	5.683	5.686
	SD	1.881	2.043	1.948
	R	31	28	29
Teaches students to make efficient use of farm labor	M	5.244	4.707	4.988
	SD	1.861	2.089	1.979
	R	39	48	44.5
Encourages students to participate in activities to improve their home and its surroundings	M	5.156	4.732	4.953
	SD	2.195	2.367	2.275
	R	41	47	46
Allows students to apply the principles of soil science	M	6.533	6.537	6.535
	SD	2.380	2.087	2.232
	R	9.5	4	2.5

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Involves students with the total crop production cycle	M	6.489	6.561	6.523
	SD	2.409	2.062	2.237
	R	11.5	3	4.5
Develops competencies in business management which prepare students for agricultural occupations off-the-farm	M	5.378	5.902	5.628
	SD	1.825	1.625	1.743
	R	37	21.5	32
Develops mechanical abilities needed in non-farm agribusiness occupations	M	5.089	4.561	4.837
	SD	1.881	2.122	2.005
	R	44.5	50	47.5
Develops competencies in livestock production needed in non-farm agribusiness occupations	M	4.000	4.293	4.140
	SD	2.722	2.600	2.653
	R	53	53	53
Develops an understanding of the services related to processing agricultural products	M	4.667	5.488	5 058
	SD	2.326	2.039	2.219
	R	50	32	42
Generates circumstances for students to market agricultural products	M	6.733	6.634	6.686
	SD	2.093	1.655	1.887
	R	4	1	1

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Develops an understanding of the service and supplies provided by non-farm agri-businesses	M	6.178	6.049	6.116
	SD	1.762	1.516	1.641
	R	20	18.5	20.5
Allows students to understand selling princi-ples used by agricultural supply and service businesses	M	5.911	5.829	5.872
	SD	2.214	1.815	2.022
	R	25.5	24.5	25
Develops student interaction with agribusiness so they can under-stand how agri-cultural busi-nesses are finan-cially operated	M	5.533	5.780	5.651
	SD	2.074	1.904	1.987
	R	35.5	26	31
Allows students to discover what employers expect from employees	M	4.489	4.634	4.558
	SD	2.242	2.222	2.221
	R	51	49	51
Allows students to understand business policies and procedures	M	5.089	5.146	5.116
	SD	2.151	1.905	2.026
	R	44.5	40	41

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Allow students to learn how agribusinesses maintain effective customer relations	M	5.200	4.780	5.000
	SD	2.222	1.969	2.103
	R	40	45	43
Increases students' respect for other person's property	M	6.133	5.659	5.907
	SD	1.926	2.093	2.010
	R	21	29.5	24
Encourages use of records and reports similar to those used by agribusinesses	M	5.778	6.439	6.093
	SD	2.173	1.484	1.895
	R	30	5	22
Teaches students to interpret records and reports in making agribusiness management decisions	M	6.022	6.415	6.209
	SD	1.828	1.431	1.653
	R	23.5	6.5	16
Allows students to practice business procedures	M	5.911	6.244	6.070
	SD	1.807	1.578	1.700
	R	25.5	9	23
Teaches students to follow established policies and regulations	M	6.044	6.195	6.116
	SD	1.595	1.504	1.545
	R	22	11.5	20.5
Aids students in understanding the importance of agriculture	M	6.489	5.878	6.198
	SD	1.753	1.860	1.820
	R	11.5	23	17

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Allows students to recognize employment opportunities in farm and non-farm agricultural occupations	M	5.667	5.268	5.477
	SD	2.034	2.236	2.129
	R	32	37	35
Generates situations where students can evaluate specific information regarding jobs in agriculture	M	4.800	4.878	4.837
	SD	1.854	2.227	2.028
	R	48	44	47.5
Allows students to recognize their abilities, talents, and interests which relate to careers in agriculture	M	5.644	5.512	5.581
	SD	1.836	2.075	1.943
	R	33	31	34
Provides students with supervised occupational experience in production agriculture	M	6.467	6.610	6.535
	SD	2.599	1.801	2.242
	R	13.5	2	2.5
Helps students recognize the need for continuing education after high school to keep up with new developments in agriculture	M	5.556	5.659	5.605
	SD	1.984	2.032	1.996
	R	34	29.5	33

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Helps students recognize employment agencies and organizations they can use in seeking an agricultural occupation	M	4.467	4.488	4.477
	SD	2.201	2.303	2.237
	R	52	51	52
Enables students to analyze opportunities for self-employment	M	5.111	5.171	5.140
	SD	2.080	2.268	2.159
	R	42.5	39	40
Allows students to analyze agricultural career opportunities with respect to their personal interests and abilities	M	5.111	5.317	5.209
	SD	1.980	2.252	2.104
	R	42.5	35	39
Increases student's interest in seeking employment in agriculture	M	5.867	5.463	5.674
	SD	1.926	1.951	1.937
	R	27	33	30
Allows students to develop abilities, aptitudes and skills that are helpful in applying and interviewing for employment	M	4.822	4.341	4.593
	SD	2.219	2.415	2.313
	R	47	52	50

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Generates the incentive for students to plan and pursue educational programs appropriate to job requirements	M	4.756	4.756	4.756
	SD	1.909	2.107	1.994
	R	49	46	49
Provides students with an understanding of ways and means to progress and advance in agricultural occupations	M	5.022	4.951	4.988
	SD	1.889	2.073	1.967
	R	46	41	44.5
Generates an appreciation for the dignity of work	M	6.533	6.049	6.302
	SD	1.727	1.816	1.776
	R	9.5	18.5	14
Teaches students to respect the opinions, feelings and concerns of others	M	6.756	5.829	6.314
	SD	1.654	1.883	1.817
	R	3	24.5	12.5
Dictates group interaction which generates the development of communication skills	M	6.556	6.098	6.337
	SD	1.878	1.960	1.920
	R	7.5	16.5	11
Promotes the development of desirable behavioral patterns	M	6.333	5.902	6.128
	SD	1.771	2.010	1.890
	R	17	21.5	18.5

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Develops acceptable personal practices and work habits	M	6.289	5.951	6.128
	SD	1.646	1.857	1.748
	R	18	20	18.5
Generates increased student participation in the FFA	M	6.844	6.171	6.523
	SD	1.770	1.986	1.896
	R	1	13	4.5
Promotes group activities which in turn develops individual leadership abilities	M	6.800	6.146	6.488
	SD	1.804	1.892	1.864
	R	2	14	6
Generates an incentive for the development of community improvement activities	M	6.022	5.415	5.733
	SD	2.340	2.258	2.308
	R	23.5	34	27.5
Provides students with opportunities for involvement with local civic organizations	M	5.533	4.902	5.233
	SD	2.322	2.396	2.365
	R	35.5	43	38
Promotes the development of desirable relationships between farm and non-farm people	M	6.200	5.220	5.733
	SD	1.914	2.019	2.014
	R	19	38	27.5

Table 21. (Continued)

Benefit		Vocational Agriculture Instructor Perception	High School Administrator Perception	Combined Perception
		N=45	N=41	N=86
Encourages students to participate in organizations or agencies which develop policies and programs affecting agriculture	M	5.333	5.293	5.314
	SD	2.195	2.216	2.192
	R	38	36	37

Information in Tables 22-25 could be beneficial to departments considering the initiation of the school farm concept. Table 22 reports the 20 most important benefits students received from activities on the school farm as perceived by instructors in the sample. Data in Table 23 provide a similar list of student benefits as perceived by high school administrators. The benefits listed in Tables 22 and 23 have been ranked by their mean scores and the items classified by their respective occupational objective.

As noted from the data in Table 23, the two highest rated benefits as perceived by instructors related to the leadership objective. Further, the third highest rating was given to one of the items in the human relations objective.

Table 22. Twenty most important student benefits as perceived by vocational agriculture instructors

Benefit	Occupational Objective Classification	Mean
		N=45
Generates increased participation in the FFA	VI	6.844
Promotes group activities which develops individual leadership abilities	VI	6.800
Teaches students to respect the opinions, feelings, and concerns of others	V	6.756
Generates circumstances for students to market agricultural products	II	6.733
Allows students to understand the financial requirements of a farm business	I	6.667
Assists students in developing skills necessary to obtain a start in farming	I	6.578
Teaches students to produce agricultural products efficiently	I	6.556
Dictates group interaction which generates the development of communication skills	V	6.556
Generates an appreciation for the dignity of work	V	6.533
Allows students to apply the principles of soil science	II	6.533
Aids students in understanding the importance of agriculture	III	6.489
Involves students with the total crop production cycle	II	6.489
Allows students to make management decisions based upon an analysis of farming records	I	6.467

Table 22. (Continued)

Benefit	Occupational Objective Classification	Mean
		N=45
Provides students with supervised occupational experience in production agriculture	III	6.467
Teaches students to conserve soil and other natural resources	I	6.422
Teaches students to efficiently market agricultural products	I	6.356
Promotes the development of desirable behaviorial patterns	V	6.333
Develops acceptable personal practices and work habits	V	6.289
Promotes the development of desirable relationships between farm and non-farm people	VI	6.200
Develops an understanding of the services and supplies provided by non-farm agribusinesses	II	6.178

Table 23. Twenty most important student benefits as perceived by high school administrators

Benefit	Occupational Objective Classification	Mean
		N=45
Generates circumstances for students to market agricultural products	II	6.634
Provides students with supervised occupational experience in production agriculture	III	6.610
Involves students with the total crop production cycle	II	6.561
Allows students to apply the principles of soil science	II	6.537
Encourages use of records and reports similar to those used by agribusinesses	II	6.439
Allows students to make management decisions based upon an analysis of farming records	I	6.415
Teaches students to interpret records and reports in making agribusiness management decisions	II	6.415
Teaches students to produce agricultural products efficiently	I	6.390
Allows students to practice business procedures	II	6.244
Assists students in developing skills necessary to obtain a start in farming	I	6.220
Teachers students to follow established policies and regulations	II	6.195
Teachers students to conserve soil and other natural resources	I	6.195
Generates increased participation in the FFA	VI	6.171

Table 23. (Continued)

Benefit	Occupational Objective Classification	Mean
		N=45
Promotes group activities which in turn develop individual leadership abilities	VI	6.146
Allows students to understand the financial requirements of a farm business	I	6.122
Teaches students to efficiently market agricultural products	I	6.098
Dictates group interaction which generates the development of communication skills	V	6.098
Generates an appreciation for the dignity of work	V	6.049
Develops an understanding of the services and supplies provided by non-farm agribusinesses	II	6.049
Develops acceptable personal practices and work habits	V	5.951

Conversely, from the data in Table 23, administrators perceived that the three most important student benefits related to the agribusiness objective and the careers objective. One should further note that six of the 20 most important benefits by both instructors and administrators were related to the agricultural production objective. Neither group, however, had any placement and advancement items among the 20 most important benefits.

Table 24. Sixteen student benefits common to both vocational agriculture instructors and high school administrators from their rankings of the twenty most important benefits

Benefit	Occupational Objective Classification	Instructor Ranking	Admin. Ranking
		N=45	N=41
Generates circumstances for students to market agricultural products	II	4	1
Allows students to make management decisions based upon an analysis of farming records	I	13.5	6.5
Allows students to apply the principles of soil science	II	9.5	4
Generates increased student participation in the FFA	VI	1	13
Involves students with the total crop production cycle	II	11.5	3
Teaches students to produce agricultural products efficiently	I	7.5	8
Assists students in developing skills necessary for obtaining a start in farming	I	6	10
Promotes group activities which in turn develops individual leadership abilities	VI	2	14
Provides students with supervised occupational experience in production agriculture	III	13.5	2

Table 24. (Continued)

Benefit	Occupational Objective Classification	Instructor Ranking	Admin. Ranking
		N=45	N=41
Allows students to understand the financial requirements of a farm business	I	5	15
Dictates group interaction which generates the development of communication skills	V	7.5	16.5
Generates an appreciation for the dignity of work	V	9.5	18.5
Teaches students to conserve soil and other natural resources	I	15	11.5
Teaches students to efficiently market agricultural products	I	16	16.5
Develops acceptable personal practices and work habits	V	18	20
Develops an understanding for the services and supplies provided by non-farm agribusinesses	II	20	18.5

Data from Table 24 reveal a positive reflection in regard to the consensus between the vocational agriculture instructors and administrators. From the 20 most important benefits as perceived by both groups, it was noted that 16 appeared in both groups. As noted in the literature review,

the importance of communication between these two parties is crucial if the school farm is to operate successfully. Therefore, it is believed that this high degree of consensus should aid in generating beneficial school farm program components.

Data presented in Table 25 offer still another valuable resource for instructors and administrators who are presently operating school farms, or who are considering future implementation. By reviewing the data in Table 25, one can observe the 20 most important student benefits as noted by a combined perception of both instructors and administrators.

Table 25. Twenty most important student benefits as perceived by combined scores of vocational agriculture instructors and high school administrators

Benefit	Occupational Objective Classification	Mean
		N=86
Generates circumstances for students to market agricultural products	II	6.686
Allows students to apply the principles of soil science	II	6.535
Provides students with supervised occupational experience in production agriculture	III	6.535
Generates increased student participation in the FFA	VI	6.523
Involves students with the total crop production cycle	II	6.523

Table 25. (Continued)

Benefit	Occupational Objective Classification	Mean
		N=86
Promotes group activities which in turn develops individual leadership abilities	VI	6.488
Teaches students to produce agricultural products efficiently	I	6.477
Allows students to make management decisions based upon an analysis of farming records	I	6.442
Allows students to understand the financial requirements of a farm business	I	6.407
Assists students in developing skills necessary to obtain a start in farming	I	6.407
Dictates group interaction which generates the development of communication skills	V	6.337
Teaches students to respect the opinions, feelings, and concerns of others	V	6.314
Teaches students to conserve soil and other natural resources	I	6.314
Generates an appreciation for the dignity of work	V	6.302
Teaches students to efficiently market agricultural products	I	6.233
Teaches students to interpret records and reports in making agribusiness management decisions	II	6.209
Aids students in understanding the importance of agriculture	III	6.198
Develops acceptable personal practices and work habits	V	6.128
Promotes the development of desirable behavioral patterns	V	6.128
Teaches students to follow established policies and regulations	II	6.116

The consensus between instructors and administrators is further evident as one views Tables 26-29. Data in Table 26 reveal the 20 least important benefits as generated from the instructor responses. These 20 items are ranked in order by their respective mean scores as were the 20 most important student benefits. This table also indicates the respective occupational objectives on an item-by-item basis.

The absence of items from the human relations objective among the 20 least important items should be observed from the data in Table 26. Further, no items relating to the human relations objective were found in the administrators' 20 least important items. This can be noted from the data in Table 27.

Table 26. Twenty least important student benefits as perceived by vocational agriculture instructors

Benefit	Occupational Objective Classification	Mean
		N=45
Helps students recognize the need for continuing education after high school to keep up with new developments in agriculture	III	5.556
Develops student interaction with agribusiness so they can understand how agricultural businesses are financially operated	II	5.533
Provides students with opportunities for involvement with local civic organizations	VI	5.533
Develops competencies in business management which prepare students for agricultural occupations off-the-farm	II	5.378
Encourages students to participate in organizations or agencies which develop policies and programs affecting agriculture	VI	5.333
Teaches students to make efficient use of farm labor	I	5.244
Allows students to learn how agribusinesses maintain effective customer relations	II	5.200
Encourages students to participate in activities to improve their home and its surroundings	I	5.156
Allows students to analyze agricultural career opportunities with respect to their personal interests and abilities	IV	5.111

Table 26. (Continued)

Benefit	Occupational Objective Classification	Mean
		N=45
Enables students to analyze opportunities for self-employment	IV	5.111
Develops mechanical abilities needed in non-farm agribusiness occupations	II	5.089
Allows students to understand business policies and procedures	II	5.089
Provides students with an understanding of ways and means to progress and advance in agricultural occupations	IV	5.022
Allows students to develop abilities, aptitudes, and skills that are helpful in applying and interviewing for employment	IV	4.822
Generates situations where students can evaluate specific information regarding jobs in agriculture	III	4.800
Generates the incentive for students to plan and pursue educational programs appropriate to job requirements	IV	4.756
Develops an understanding of the services related to processing agricultural products	II	4.667
Allows students to discover what employers expect from employees	II	4.489
Helps students recognize employment agencies and organizations they can use in seeking an agricultural occupation	IV	4.467
Develops competencies in livestock production needed in non-farm agribusiness occupations	II	4.000

Table 27. Twenty least important student benefits as perceived by high school administrators

Benefit	Occupational Objective Classification	Mean
		N=41
Generates an incentive for the development of community improvement activities	VI	5.415
Allow students to analyze agricultural career opportunities with respect to their personal interests and abilities	IV	5.317
Encourages students to participate in organizations or agencies which develop policies and programs affecting agriculture	VI	5.293
Allow students to recognize employment opportunities in farm and non-farm agricultural occupations	III	5.268
Promotes the development of desirable relationships between farm and non-farm people	VI	5.220
Enables students to analyze opportunities for self-employment	IV	5.171
Allows students to understand business policies and procedures	II	5.146
Provides students with an understanding of ways and means to progress and advance in agricultural occupations	IV	4.951
Allows students to develop effective human relations skills	I	4.927
Provides students with opportunities for involvement with local civic organizations	VI	4.902
Generates situations where students can evaluate specific information regarding jobs in agriculture	III	4.878

Table 27. (Continued)

Benefit	Occupational Objective Classification	Mean
		N=41
Allows students to learn how agri-businesses maintain effective customer relations	II	4.780
Generates the incentive for students to plan and pursue education programs appropriate to job requirements	IV	4.756
Encourages students to participate in activities to improve their home and its surroundings	I	4.732
Teaches students to make efficient use of farm labor	I	4.707
Allows students to discover what employers expect from employees	II	4.634
Develops mechanical abilities needed in non-farm agribusiness occupations	II	4.561
Helps students recognize employment agencies and organizations they can use in seeking an agricultural occupation	IV	4.488
Allows students to develop abilities, aptitudes, and skills that are helpful in applying and interviewing for employment	IV	4.341
Develops competencies in livestock production needed in non-farm agribusiness occupations	II	4.293

Information provided in Table 28 reveal still further consensus between the instructors and administrators. The data in Table 28 list the sixteen least important benefits common to both the instructors' and administrators' perceptions of the 20 least important student benefits. It should be noted that six of these least important items relate to the placement and advancement objective. Further, no items relating the human relations objective were found in these 16 least important benefits.

Table 28. Sixteen student benefits common to both vocational agriculture instructors and high school administrators from their rankings of the twenty least important benefits

Benefit	Occupational Objective Classification	Instructor Ranking	Admin. Ranking
		N=45	N=41
Encourages students to participate in organizations or agencies which develop policies and programs affecting agriculture	VI	38	36
Allow students to analyze agricultural career opportunities with respect to their personal interests and abilities	IV	42.5	35

Table 28. (Continued)

Benefit	Occupational Objective Classification	Instructor Ranking	Admin. Ranking
		N=45	N=41
Provides students with opportunities for involvement with local civic organizations	VI	35.5	43
Enables students to analyze opportunities for self-employment	IV	42.5	39
Allow students to learn how agribusinesses maintain effective customer relations	II	40	45
Allow students to understand business policies and procedures	II	44.5	40
Provides students with an understanding of ways and means to progress and advance in agricultural occupations	IV	46	41
Teaches students to make efficient use of farm labor	I	39	48
Encourages students to participate in activities to improve their home and its surroundings	I	41	47
Generates situations where students can evaluate specific information regarding jobs in agriculture	III	48	44
Develops mechanical abilities needed in non-farm agribusiness occupations	II	44.5	50

Table 28. (Continued)

Benefit	Occupational Objective Classification	Instructor Ranking	Admin. Ranking
		N=45	N=41
Generates the incentive for students to plan and pursue educational programs appropriate to job requirements	IV	49	46
Allows students to develop abilities, aptitutdes, and skills that are helpful in applying and interviewing for employment	IV	47	52
Allows students to discover what employers expect from employees	II	51	49
Helps students recognize employment agencies and organizations they can use in seeking an agricultural occupation	IV	52	51
Develops competencies in livestock production needed in non-farm agribusiness occupations	II	53	53

Table 29 reports the 20 least important benefits as generated by a combined mean score from both instructors and administrators. It should be noted that six of these relate to the placement and advancement objectives, and six items relate to the agribusiness objective. None of these 16 least important items pertained to the human relations objective.

Table 29. Twenty least important student benefits as perceived by combined scores of vocational agriculture instructors and high school administrators

Benefit	Occupational Objective Classification	Mean
		N=86
Allows students to recognize their abilities, talents, and interests which relate to careers in agriculture	III	5.581
Allows students to recognize employment opportunities in farm and nonfarm agricultural occupations	III	5.477
Allows students to develop effective human relation skills	I	5.407
Encourages students to participate in organizations or agencies which develop policies and programs affecting agriculture	VI	5.314
Provides students with opportunities for involvement with local civic organizations	VI	5.233
Allows students to analyze agricultural career opportunities with respect to their personal interests and abilities	IV	5.209

Table 29. (Continued)

Benefit	Occupational Objective Classification	Mean
		N=86
Enables students to analyze opportunities for self-employment	IV	5.140
Allows students to understand business policies and procedures	II	5.116
Develops an understanding of the services related to processing agricultural products	II	5.058
Allows students to learn how agribusinesses maintain effective customer relations	II	5.000
Provides students with an understanding of ways and means to progress and advance in agricultural occupations	IV	4.988
Teaches students to make efficient use of farm labor	I	4.988
Encourages students to participate in activities to improve their home and its surroundings	I	4.953
Develops mechanical abilities in non-farm agribusiness occupations	II	4.837
Generates situations where students can evaluate specific information regarding jobs in agriculture	III	4.837
Generates the incentive for students to plan and pursue educational programs appropriate to job requirements	IV	4.756
Allows students to develop abilities, aptitudes, and skills that are helpful in applying and interviewing for employment	IV	4.593
Allows students to discover what employers expect from employees	II	4.558

Table 29. (Continued)

Benefit	Occupational Objective Classification	Mean
		N=86
Helps students recognize employment agencies and organizations they can use in seeking an agricultural occupation	IV	4.477
Develops competencies in livestock production needed in non-farm agribusiness occupations	II	4.140

The major advantages of the school farm as perceived by instructors are identified in Table 30. Similarly, perceptions generated from administrators regarding the major advantages of a school farm are exhibited in Table 31. Both sets of data were generated from their responses to open-ended questions, therefore, the actual responses from both groups were categorized and grouped so that these tables also reveal similarities between these two groups. The most frequently noted advantage of a school farm as perceived by instructors was to provide practical "hands-on" experience with production agriculture. This was the second most frequent response of administrators, however, they classified this benefit to non-farm students. The second most frequent response from instructors was the school farm's use as a money making source for the FFA Chapter and/or vocational

agriculture department. This benefit was the fourth most frequent response from administrators. The third most frequently noted advantage of the school farm as perceived by vocational agriculture instructors was the farm's use in relating classroom instruction to actual learning situations. Administrators, on the other hand, listed this advantage more frequently than any of the others. Other advantages as perceived by both groups were: (1) develop student interest in agronomy, (2) develop responsibility in students, and (3) increased public relations and community involvement. As revealed from information in Tables 30 and 31, there is a high degree of concensus between instructors and administrators concerning the major advantages of a school farm.

Table 30. Major advantages of a school farm as perceived by vocational agriculture instructors attained by means of their responses to an open-ended question

Advantage	Frequency
Practical "hands-on" experiences with production agriculture	16
Money making for the FFA Chapter and/or vocational agriculture program	12
Relates classroom instruction to actual learning situations	7
Development of management skills	7
Provides a place for supervised occupational experience programs	6
Provides a laboratory for area farmers	5
Increased public relations and community involvement	5
Develops student interest in agronomy	4
Develops responsibility in students	3
Provides a problem solving approach to learning	1
Develops student leadership	1
Develops knowledge and skills in unfamiliar areas	1
Provides a facility in which livestock efficiency factors can be checked	1
Provides for student operation of agricultural machinery and equipment	1
Provides a place for field trips that is close to the vocational agriculture classroom	1

Table 31. Major advantages of a school farm as perceived by the high school administrators attained by means of their responses to an open-ended question

Advantages	Frequency
Relates the classroom to actual learning situations	19
Provides production agriculture experiences to non-farm students	6
Develops student interest in agronomy	5
Money making for the FFA Chapter and/or the vocational agriculture program	2
Develops student interest in agriculture	2
Develops responsibility in students	1
Increased public relations and community involvement	1
Student involvement with agribusiness employers	1
No advantage	4

Data in Table 32 reveal the major disadvantages of the school farm as perceived by instructors. Similar disadvantages were reported by administrators (Table 33). Both tables were generated from instructor and administrator responses to open-ended questions. The following six major disadvantages were found common to both groups: (1) borrowing equipment and machinery when needed, (2) extra time required by the vocational agriculture instructor for coordination and supervision, (3) finances necessary for operation, (4) not enough livestock or no livestock present, (5) total student

involvement, and (6) student scheduling. It is also interesting to note that a seventh item, no disadvantages, was mentioned by both groups. So, according to information in Tables 30, 31, 32, and 33, there is a high degree of concensus between the vocational agriculture instructors and administrators regarding their perceptions of the major advantages and disadvantages of a school farm. These responses are quite similar to those provided in the literature review chapter of this study.

Table 32. Major disadvantages of a school farm as perceived by vocational agriculture instructors attained by means of their responses to an open-ended question

Disadvantages	Frequency
Borrowing equipment and machinery when needed	11
Added burden or concern for the instructor	8
Extra time required for coordination and supervision by the instructor	9
Poor public relations if the school farm is not maintained satisfactorily	6
Total student involvement	5
Student transportation to and from the school farm	5
Instructor organization and coordination	4
Finances necessary for operation	4
Work done by inexperienced students	3
Legal responsibilities	1
Not enough animals for individual student projects	1
Vandalism	1
Scheduling student work time	1
Too small to justify machinery purchases	1

Table 32. (Continued)

Disadvantages	Frequency
Weeds	1
Long range planning and development is difficult	1
None	3

Table 33. Major disadvantages of a school farm as perceived by high school administrators attained by means of their responses to an open-ended question

Disadvantages	Frequency
Extra time required for instructor coordination and supervision	8
Borrowing equipment and machinery when needed	5
Finances necessary for operation	4
Too many students to have all involved	2
Unrealistic financial situation due to donations	2
Jealously of other faculty members	2
Summer involvement of students	1
Distance from the vocational agriculture classroom	1
No livestock	1
Student scheduling	1
Per pupil cost	1
Animal security	1
Students not totally responsible for individual projects	1
Class time wasted	1
None	4

Pearson Product Moment Correlations

This section presents the correlations among the 53 student benefit variables, and selected instructor and administrator variables. Data in Table 34a present the correlation coefficients and reveal the ones that are statistically significant at the .05 and .01 levels. The 53 student benefits were grouped into clusters that correspond to the six occupational objectives for vocational education in agriculture. The variables used in Table 34a are identified in Table 34b. (The benefit items for each of the six objective clusters were identified earlier on pages 95 and 96).

As revealed in Table 34a, the six benefit clusters corresponding to the occupational objectives, variables one through six, were found to be significantly (.01 level) and positively correlated with one another. All of these coefficients were above .50, indicating a relatively strong relationship between variables. These findings indicated that the clusters of benefits instructors perceived students receiving from participation in agricultural activities on school farm were intercorrelated.

The data in Table 34a also revealed additional significant relationships between variables at the .05 or greater level. However, many of these significant coefficients were below .50 and should be considered relatively weak relation-

ships. Listed below are the pairs of variables where a significant (.05 or greater level) relationship was observed and the coefficient was greater than .50:

1. Agricultural production and the agricultural business clusters. (.7611)
2. Agricultural production and the careers clusters. (.6396)
3. Agricultural production and the placement and advancement clusters. (.6251)
4. Agricultural production and the human relations clusters. (.6745)
5. Agricultural production and the leadership clusters. (.6470)
6. Agricultural business and the careers clusters. (.7032)
7. Agricultural business and the placement and advancement clusters. (.5684)
8. Agricultural business and the human relations clusters. (.6693)
9. Agricultural business and the leadership clusters. (.6490)
10. Careers and the placement and advancement clusters. (.8669)
11. Careers and the human relations clusters. (.6433)

12. Careers and the leadership clusters. (.6161)
13. Placement and advancement and the human relations clusters. (.6020)
14. Placement and advancement and the leadership clusters. (.5485)
15. Human relations and the leadership clusters. (.6099)
16. The number of vocational agriculture instructors and the total number of vocational agriculture students. (.8824)
17. The number of instructors and the number of non-farm students. (.8332)
18. The number of instructors and the distance the school farm is located from the vocational agriculture classroom. (.6435)
19. The number of years vocational agriculture teaching experience and the number of years responsible for the operation of a school farm. (.8018)
20. The total number of vocational agriculture students and the number of non-farm students. (.8769)
21. The total number of vocational agriculture students and the distance the school farm is located from the vocational agriculture classroom. (.6446)

22. The number of non-farm students and the distance the school farm is located from the vocational agriculture classroom. (.7798)
23. The number of non-farm students and the number of acres in the school farm. (.5452)
24. The distance the school farm is located from the vocational agriculture classroom and the number of acres in the school farm. (.7745)

Table 34a. Coefficients of correlation between student benefits as perceived by vocational agriculture instructors and selected continuous instructor variables

Variable Number[a]	1	2	3	4	5
1	1.000				
2	.7611**	1.000			
3	.6396**	.7032**	1.000		
4	.6251**	.5684**	.8669**	1.000	
5	.6745**	.6693**	.6433**	.6020**	1.000
6	.6470**	.6490**	.6161**	.5485**	.6099**
7	.3901**	.4052**	.3351*	.3673**	.3194*
8	-.0861	-.0429	-.2291	-.2761*	-.1560
9	-.1243	-.1521	-.3632**	-.3652**	-.2576*
10	.2813*	.3393*	.3107*	.3323*	.2871*
11	-.0102	-.0477	-.1395	-.0254	.0423
12	.2952*	.3815**	.3961**	.3589**	.2716*
13	.1215	.2513*	.2105	.1563	.1194
14	.1693	.0683	.2410	.2438	.0597

*Significant at the .05 level.

**Significant at the .01 level.

6	7	8	9	10
1.000				
.4066**	1.000			
-.0117	.0229	1.000		
.0231	-.0199	.8018**	1.000	
.3112*	.8824**	-.0150	-.0668	1.000
.0742	.1823	.0152	.1011	.3558*
.2809*	.8332**	-.0345	-.1259	.8769**
.1805	.6435**	-.0137	.0741	.6446**
.2298	.4507**	.0614	.1634	.4398**

Table 34 (Continued)

	11	12	13	14
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11	1.000			
12	-.1560	1.000		
13	-.1840	.7798**	1.000	
14	-.1538	.5452**	.7745**	1.000

Table 34b. Variables used in Table 34a

1	To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture (questions 1-11).
2	To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture (questions 12-29).
3	To develop an understanding of an appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations (questions 30-35).
4	To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education (questions 36-42).
5	To develop those abilities in human relations which are essential in agricultural occupations (questions 43-47).
6	To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities (questions 48-53).
7	The number of high school vocational agriculture instructors in the school system.
8	The number of years the instructor has taught vocational agriculture.
9	The number of years the instructor has been partially or fully responsible for the operation of a school farm.
10	The number of high school vocational agriculture students in the department.
11	The number of farm students in the vocational agriculture department.
12	The number of non-farm students in the vocational agriculture department.
13	The number of miles the school farm is located from the vocational agriculture classroom.
14	The number of acres in the school farm.

Data in Table 35a present the coefficients of correlation involving the six clusters of student benefits corresponding to the objectives of vocational education in agriculture and four administrator variables. Notations are provided to identify the coefficients significant at the .01 and .05 levels. As in Table 34a, the six clusters of benefits, variables one through six, were intercorrelated (coefficients ranging from .54 to .86), and in all cases were significant at the .01 level.

Additional significant (.05 level or greater), correlations were also observed in Table 35a, however, it should be pointed out that some of the coefficients were relatively low. Listed below are the pairs of variables where a significant relationship was observed and the degree of relationship was represented by a coefficient of .50 or greater:

1. Agricultural production and the agricultural business clusters. (.8631)
2. Agricultural production and the careers clusters. (.7187)
3. Agricultural production and the placement and advancement clusters. (.7143)
4. Agricultural production and the human relations clusters. (.5552)

5. Agricultural production and the leadership clusters. (.5358)
6. Agricultural business and the careers clusters. (.8356)
7. Agricultural business and the placement and advancement clusters. (.8585)
8. Agricultural business and the human relations clusters. (.6931)
9. Agricultural business and the leadership clusters. (.6851)
10. Careers and the placement and advancement clusters. (.8461)
11. Careers and the human relations clusters. (.7529)
12. Careers and the leadership clusters. (.7488)
13. Placement and advancement and the human relations clusters. (.7299)
14. Placement and advancement and the leadership clusters. (.7829)
15. Human relations and the leadership clusters. (.7660)
16. Number of years employed as a high school administrator and the number of years employed as a high school administrator where vocational agriculture was offered in the curriculum. (.8531)
17. Number of years employed as a high school adminis-

trator and the number of years employed as a high school administrator with involvement in the operation of a school farm. (.5035)

18. The number of years employed as a high school administrator with vocational agriculture offered in the curriculum and the number of years employed as a high school administrator with involvement in the operation of a school farm. (.6411)

Table 35a. Coefficients of correlation between student benefits as perceived by high school administrators and selected continuous administrator variables

Variable Number[a]	1	2	3	4	5
1	1.000				
2	.8631**	1.000			
3	.7187**	.8356**	1.000		
4	.7143**	.8585**	.8461**	1.000	
5	.5552**	.6931**	.7529**	.7299**	1.000
6	.5358**	.6851**	.7488**	.7829**	.7660**
7	-.2390	-.2863*	-.2138	-.3048*	-.3281*
8	-.1841	-.2398	-.2160	-.2713*	-.2706*
9	.1243	.0147	-.0782	-.1227	-.1731
10	-.1461	-.1096	-.0068	-.0472	.0023

*Significant at the .05 level.

**Significant at the .01 level.

6	7	8	9	10
1.000				
-.1599	1.000			
-.1603	.8531**	1.000		
-.1286	.5035**	.6411**	1.000	
.0212	.1452	-.0091	-.0940	1.000

Table 35b. Variables used in Table 35a

1	To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture (questions 1-11).
2	To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture (questions 12-29).
3	To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations (questions 30-35).
4	To develop the ability to secure satisfactory placement and to develop in an agricultural occupation through a program of continuing education (questions 36-42).
5	To develop those abilities in human relations which are essential in agricultural occupations (questions 43-47).
6	To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities (questions 48-53).
7	The number of years employed as a high school administrator.
8	The number of years employed as a high school administrator where vocational agriculture was offered.
9	The number of years employed as a high school administrator in which they were involved with the operation of school farm.
10	High school enrollment (grades 9-12).

Table 36 presents a third group of correlation coefficients representing combined ratings by teachers and administrators. The six variables listed in this table are the six clusters of student benefits that correspond to the objectives of vocational education in agriculture. All 15 correlations were significant at the .01 level and had coefficients above .60, indicating that the six clusters of student benefits from participation in agricultural activities on school farms as perceived by instructors and administrators were highly intercorrelated.

Table 36. Coefficients of correlation between student benefits from agricultural activities on the school farm as perceived by combined scores of vocational agriculture instructors and high school administrators

Variable Number[a]	1	2	3	4	5	6
1	1.000					
2	.7964**	1.000				
3	.6791**	.7633**	1.000			
4	.6688**	.7122**	.8541**	1.000		
5	.6212**	.6623**	.6970**	.6661**	1.000	
6	.6006**	.6482**	.6791**	.6644**	.6969**	1.000

[a]1To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture.

2To develop agricultural competencies needed by individuals engaged in preparing to engage in agricultural occupations other than production agriculture.

3To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations.

4To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education.

5To develop those abilities in human relations which are essential in agricultural occupations.

6To develop the abilities needed to exercise and follow effective leadership in fulfilling occupational, social, and civic responsibilities.

**Significant at the .01 level.

The final table in this section, Table 37, presents a rank order of the six student benefit clusters by the objectives of vocational education in agriculture as perceived by the 45 instructors and the 41 administrators. A combined ranking of these two groups is also presented. These rankings were based upon mean scores for clusters of benefits. The means for the six clusters of benefits were calculated from individual item ratings of the respondents.

The human relations cluster of benefits had the highest mean, and thus the highest ranking in all three instances. The careers cluster of benefits ranked fourth and the placement and advancement cluster ranked sixth in all three instances. The major discrepency between the two groups of educators occurred with the leadership cluster or objective. From the instructors' mean score, it was ranked second. However, based upon the administrators' mean scores, the leadership cluster was ranked fifth.

Table 37. Rank order of benefit clusters from student activities on a school farm by instructors, administrators, and combined group

Benefit Cluster (Occupational Objective)	Vocational Agriculture Instructor Ranking	Admin. Ranking	Combined Ranking
	N=45	N=41	N=86
To develop agricultural competencies needed by individuals engaged in or preparing to engage in production agriculture	3rd	2nd	2nd
To develop agricultural competencies needed by individuals engaged in or preparing to engage in agricultural occupations other than production agriculture	5th	3rd	5th
To develop an understanding of and appreciation for career opportunities in agriculture and the preparation needed to enter and progress in agricultural occupations	4th	4th	4th
To develop the ability to secure satisfactory placement and to advance in an agricultural occupation through a program of continuing education	6th	6th	6th
To develop those abilities in human relations which are essential in agricultural occupations	1st	1st	1st
To develop the abilities needed to exercise and follow effective leadership and ethical working relationships with associates	2nd	5th	3rd

Analysis of Variance by the Six Objectives of Vocational Education in Agriculture

This final section includes six analysis of variance tables, one for each of the six clusters of student benefits or six objectives for vocational education in agriculture. Data in these tables were provided by 33 instructors and 33 administrators paired by school. As noted in Tables 38-43, only one analysis of variance calculation detected a significant difference between instructors' and administrators' mean ratings of benefits students receive from agricultural activities on a school farm. As shown in Table 42, the human relations cluster (objective) yielded an F-value significant at the .05 level. Instructors' mean score (6.57) was significantly higher than administrators' mean score (5.93). However, the relatively high means by both groups indicates strong positive perceptions about human relations benefits from student participation in school farm activities. As reported in Table 37, this cluster of benefits was ranked first by both groups.

The lack of significant differences observed in the other five analyses (Tables 38, 39, 40, 41, and 43) revealed that administrators and instructors were in agreement on the benefits students receive from agricultural activities on school farms.

Table 38. Analysis of variance of vocational objective I (production agriculture) for group paired by school

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F-Value	Significance of F
Instructor vs administrator	1	1.085	1.085	.929	.342
Among schools	32	65.263	2.039		
Error	32	37.347	1.167		
Total	65	103.694	1.595		

Table 39. Analysis of variance of vocational objective II (agribusiness) for group paired by school

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F-Value	Significance of F
Instructor vs administrator	1	.513	.513	.405	.529
Among schools	32	55.158	1.724		
Error	32	40.538	1.267		
Total	65	96.209	1.480		

Table 40. Analysis of variance of vocational objective III (careers) for group paired by school

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F-Value	Significance of F
Instructor vs administrator	1	.061	.061	.049	.827
Among schools	32	101.670	3.177		
Error	32	40.215	1.257		
Total	65	141.946	2.184		

Table 41. Analysis of variance of vocational objective IV (placement and advancement) for group paired by school

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F-Value	Significance of F
Instructor vs administrator	1	.001	.001	.000	.982
Among schools	32	136.730	4.273		
Error	32	71.216	2.225		
Total	65	207.946	3.199		

Table 42. Analysis of variance of vocational objective V (human relations) for group paired by school

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F-Value	Significance of F
Instructor vs administrator	1	6.682	6.682	4.198	.049*
Among schools	32	90.565	2.830		
Error	32	50.938	1.592		
Total	65	148.184	2.280		

*Significant at the .05 level.

Table 43. Analysis of variance of vocational objective VI (leadership) for group paired by school

Source of Variation	Degree of Freedom	Sum of Squares	Mean Square	F-Value	Significance of F
Instructor vs administrator	1	4.462	4.462	1.783	.191
Among schools	32	93.160	2.911		
Error	32	80.086	2.503		
Total	65	177.707	2.734		

CHAPTER V.

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Statement of the Problem

Vocational agriculture school farms have served in the past as one means of providing practical experiences for high school students enrolled in vocational agriculture. The use of these school farms in the instructional program has fluctuated in past years. However, the 1970s showed an increase in the use of school farms. The increased use of school farms in vocational agriculture may be contributed to diversity of students' interests and abilities, the need for practical experience through group instruction, and the increasing number of non-farm students.

The literature revealed many advantages and disadvantages for using the school farm, and operational procedures for such facilities. However, research pertaining to the benefits students receive from agricultural activities on a school farm has been limited.

Purpose of the Study

In 1965, a joint committee from the United States Office of Education and the American Vocational Association established six basic objectives and contributing objectives for vocational education in agriculture. These objectives

provide the basic framework for high school vocational agriculture programs nationwide. Since the use of school farms has increased over the past several years, it is important to determine the benefits vocational agriculture students receive from agricultural activities on these farms. Furthermore, it is important to determine the school farm's role in meeting the objectives of vocational education in agriculture.

The central purpose of this study was to ascertain the benefits students receive from activities on school farms in the states of Iowa, Kansas, Missouri, and Nebraska as perceived by vocational agriculture instructors and school administrators. The specific objectives of this study were to:

1. Identify personal and situational characteristics of high school vocational agriculture instructors and administrators operating school farms in the four-state area.
2. Identify the benefits high school vocational agriculture students derive from school farm activities as perceived by high school vocational agriculture instructors and administrators in the four-state area.

3. Determine if significant differences exist between high school administrators and vocational agriculture instructors in regard to the perceived benefits vocational agriculture students receive from participation in school farm activities.
4. Determine if significant relationships exist between degree of benefit perceived by educators and selected situational variables.

Procedure

The population for this research study consisted of the high school vocational agriculture programs in the states of Iowa, Kansas, Missouri, and Nebraska during the 1980-81 school year identified as operating school farms. Seventy-eight of 128 Iowa vocational agriculture instructors identified as operating school farms by a study conducted by Rutachokozibwa (1981) were sent a one-page informational questionnaire in the winter of 1981. Further, the one-page questionnaire was mailed to 161 Kansas instructors, 229 Missouri instructors, and 145 Nebraska instructors. The four basic purposes of this one-page questionnaire were to: (1) identify the vocational agriculture programs which were presently operating school farms, (2) ascertain the scope and basic uses of the school farm, (3) secure the name of the vocational agriculture instructor with major responsi-

bility for the school farm, and (4) secure the name of the school administrator with major responsibility for the school farm.

Schools identified as operating farms in this four-state area were alphabetized by state, and a sample was selected from each of the four states. The selected sample included 68 programs, 26 from Iowa, 12 from Kansas, 18 from Missouri, and 12 from Nebraska.

Two instruments were developed and used to obtain perceptions of the benefits vocational agriculture students receive from their involvement in school farm activities; one for the school administrators and one for the vocational agriculture instructors. Part I of both questionnaires contained the same 53 items relating to possible student benefits from agricultural activities on a school farm. Part II of the questionnaires contained items relating to personal and situational characteristics of the respondents.

The data were collected by mail during April, 1981. Usable data were received from 41 administrators and 45 vocational agriculture instructors.

Data from these 41 administrators and 45 instructors were used in describing the respondents and in reporting summary responses. However, in the analysis of variance tests, only responses from matched pairs (schools with

responses from both the administrator and the vocational agriculture instructor) were included.

Summary of Findings

Data received from vocational agriculture instructors operating school farms indicated that:

1. 77.8 percent were teaching in single teacher departments.
2. 42.5 percent had taught vocational agriculture five years or less, and 64.7 percent had taught ten years or less.
3. 55.8 percent had operated a school farm five years or less.
4. 62.3 percent of the departments contained 60 or less vocational agriculture students.
5. The mean farm student enrollment was 39.6.
6. The mean non-farm student enrollment was 21.7.
7. 84.6 percent of the school farms were located two miles or less from the vocational agriculture classroom.
8. 75.6 percent of the school farms were 20 acres or less in size.
9. 31.3 percent of the school farms housed livestock.
10. 24.4 percent of the school farms utilized a person

other than the vocational agriculture instructor to supervise student activities on the school farm.

11. 93.3 percent believed that the school farm is an important teaching resource for the vocational agriculture department.
12. 86.7 percent stated that they would be responsive to initiating the school farm concept if their departments did not presently operate a school farm.
13. The school farm was most commonly used to supplement vocational agriculture classroom instruction.
14. The most frequent activities carried-out on the school farm related to agronomy.
15. 97.8 percent of the departments utilized vocational agriculture class activities on the school farm.
16. 62.2 percent of the departments utilized group or cooperative activities on the school farm.
17. 24.4 percent of the departments utilized individual student ownership of livestock or crops on the school farm.
18. 66.9 percent of the students attained their primary supervised occupational experience programs on the home farm.

19. 12.3 percent of the students were attaining their primary supervised occupational experience programs from school laboratories (5.6% on school farms, 5.0% in agricultural mechanics laboratories, and 1.7% in greenhouses).
20. The most frequently mentioned advantage of a school farm was its usefulness in providing practical "hands-on" experiences with production agriculture.
21. The most frequently mentioned disadvantage of a school farm related to the problem of borrowing equipment and machinery when needed.

Data received from administrators responsible for the operation of a school farm indicated that:

1. 12.3 was the mean years employed as a high school administrator.
2. 9.6 was the mean years employed as a high school administrator where vocational agriculture was offered in the curriculum.
3. 5.9 was the mean years employed as a high school administrator with responsibility for a school farm.
4. 4.9 percent had previously taught vocational agriculture.
5. 48.8 percent had previously farmed full-time or part-time.

6. 36.6 percent had previously been employed by an agribusiness or agricultural agency.
7. 4.9 percent had a son or daughter who was presently or previously enrolled in vocational agriculture.
8. 332 was the mean high school enrollment in grades 9-12.
9. 92.7 percent felt that the school farm was an important teaching resource for the vocational agriculture program.
10. 87.8 percent stated that they would be receptive to the idea of initiating the school farm concept if their vocational agriculture program did not presently operate a farm.
11. The most frequently mentioned advantage of a school farm was its usefulness in relating classroom instruction to actual learning situations.
12. The most frequently mentioned disadvantage of a school farm regarded the extra time required for instructor coordination and supervision.

Data received from vocational agriculture instructors and administrators in regard to the benefits vocational agriculture students receive from agricultural activities on the school farm are summarized as follows:

1. Instructors rated 46 of the 53 benefits above five, mid-point on a nine-point scale.
2. Administrators rated 40 of the 53 items above five.
3. From a combined perception of instructors and administrators, 42 of the 53 benefit items were rated above five.
4. Sixteen benefits were common to the instructors and administrators 20 most important student benefits.
5. Sixteen student benefits were common to the instructors and administrators 20 least important student benefits.
6. The human relations cluster of benefits was rated highest by both instructors and administrators.
7. The placement and advancement cluster of benefits was rated lowest by both instructors and administrators.
8. A significant difference was observed between instructors' and administrators' mean scores for the human relations cluster of benefits.
9. The six clusters of student benefits, corresponding to the objectives of vocational agriculture, were significantly and positively intercorrelated.

Conclusions

Based upon the findings of this study, the following conclusions were drawn:

1. Both instructors and administrators participating in this study felt that a school farm was a valuable component of the vocational agriculture program.
2. The greatest student benefits from agricultural activities on the school farm as perceived by both instructors and administrators related to human relations.
3. The least important student benefits from agricultural activities on the school farm as perceived by vocational agriculture instructors and administrators related to placement and advancement in agricultural occupations.
4. The most frequently used activities on the school farm related to the study of agronomy.
5. The least frequently used activities on the school farm related to the study of horticulture.
6. Instructors and administrators supported the school farm concept as a part of vocational agriculture.
7. Instructors and administrators were in general agreement on the types of benefits students receive

from agricultural activities on the school farm.

Recommendations

Based upon the findings of this study, the following recommendations are made for future study.

1. The researcher recommends duplicating this study in other areas of the United States.
2. It is recommended that a study be conducted to determine the use of school farms in vocational agriculture summer programs.
3. The researcher recommends that a study be conducted to determine alternative uses and benefits of the school farm for other high school and elementary groups.
4. It is recommended that a study be conducted to determine possible FFA activities and opportunities related to the school farm concept.
5. It is recommended that a study be conducted to determine the benefits vocational agriculture instructors derive from the operation and management of a school farm.
6. It is recommended that this same study be conducted using parental and vocational agriculture student perceptions.

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ACKNOWLEDGEMENTS

The researcher wishes to express his most sincere appreciation to the following people for their support during my graduate program.

A special and most sincere appreciation is extended to Dr. David L. Williams for his advice, suggestions, and guidance in serving as major professor and in guiding my final research study.

The researcher also wishes to extend a very special appreciation to Dr. Thomas A. Hoerner for providing me a staff appointment and financial support to make my graduate study possible. A special thanks is also given for serving on my committee and conveying a true example of a master teacher educator.

To Dr. Harold R. Crawford, sincere thanks are extended for his professional advice and leadership as Head of the Agricultural Education Department, for serving as a member of my committee, and for the numerous opportunities, challenges, and encouraging remarks provided during my professional development as a graduate student.

The researcher also wishes to express special thanks to Dr. Richard Carter for serving on my committee, but more importantly for conveying the importance of doing one's very

best in all of our life's endeavors.

Thanks are also extended to Dr. Howard Johnson for serving as a member of my committee and for his leadership as Head of the Agricultural Engineering Department.

Special thanks are also extended to Dr. Roy Hickman for taking time from his schedule to assist me with my computer work and statistical analyses.

A very special and most sincere appreciation is extended to Dee Van De Pol for her understanding, secretarial assistance, and friendship.

Finally, I wish to dedicate my research to my two children, Michele and Brian, who unknowingly sacrificed so that I might now have a very meaningful future.

The Iowa State University Committee on the Use of Human Subjects in Research reviewed this project and concluded that the rights and welfare of the human subjects were adequately protected, that risks were outweighed by the potential benefits and expected value of the knowledge sought, that confidentiality of data was assured and that informed consent was obtained by appropriate procedures.

APPENDIX A: INFORMATIONAL QUESTIONNAIRE

Iowa State University *of Science and Technology* *Ames, Iowa 50011*

DATE: February 12, 1981

TO: Vocational Agriculture Teachers

FROM: David A. McCarthy
Graduate Student in Ag Ed
Iowa State University

Dr. David L. Williams
Department of Agricultural Education
Iowa State University

Many vocational agriculture departments in Iowa, Missouri, Kansas and Nebraska have school farms that are used as laboratories. Some are used for instructional purposes and others as a source of finance. At present, this information is not known on a multi-state basis. Would you please provide the following information, fold, tape, and return it to us by Feb. 28, 1981. We plan to use the information provided by you and other vocational agriculture teachers in these four states to select schools for a more indepth study of school farms as a teaching tool in vocational agriculture. We'll share the summary with you if you so request. Thank you!

---

1. Does your school have a farm that the vocational agriculture department uses for instructional, financial, or other purposes? ___ YES ___ NO

2. If yes, check applicable information:

   (____land laboratory ___ Number of acres) ____livestock laboratory

   Give types of animals on the school farm _____

3. The school farm is used for: (check all appropriate items)

   ____instructional purposes ____ experiments

   ____demonstrations ____ FFA chapter finance

   ____student SOE programs ____ Other (specify)_____

4. How many vocational agriculture teachers are in your school? _____

5. Please provide the following information for the vocational agriculture teacher with major responsibility for the school farm:

   Vocational Agriculture Teacher: _____

   School: _____

   Street Address: _____

   City, State, Zip: _____

   Vo Ag Phone Number: ( ) -

6. Please provide the following information for the school principal or other school administrator who is most directly responsible for the operation of the school farm:

   School Administrator: _____

   Street Address: _____ Title

   City, State, Zip: _____

   Phone Number: ( ) -

7. Do you feel the availability and use of a school farm enhances the overall vocational agriculture instructional program? ___ YES ___ NO

APPENDIX B: SCHOOLS PARTICIPATING IN THE STUDY

Iowa High Schools Participating In the Study

1. Adair
2. Alleman
3. Central City
4. Clarinda
5. Decorah
6. Decorah, Rt. 3
7. Dunkerton
8. Fairfield
9. Farmington
10. Harlan
11. Hudson
12. Kellerton
13. Kingsley
14. LeGrand
15. LeMars
16. Lone Tree
17. Monroe
18. Montezuma
19. Neola
20. Newton
21. Packwood, Rt. 1
22. Pella
23. Rockwell City
24. Spencer
25. Tabor
26. Williamsburg

Kansas High Schools Participating In The Study

1. Anthony
2. Cherokee
3. Dodge City
4. Haven
5. Hill City
6. Hoxie
7. Paola
8. Peabody
9. Riley
10. Russell
11. Scott City
12. Tribune

Missouri High Schools Participating In The Study

1. Anderson
2. Carl Junction
3. Edina
4. Essex
5. Golden City
6. Granby
7. Hardin
8. Jefferson City
9. Laddonia
10. Louisburg
11. Montgomery City
12. Palmyra
13. Patton
14. Princeton
15. Puxico
16. Shelbyville
17. Tina
18. Trenton

Nebraska High Schools Participating In The Study

1. Blair
2. Firth
3. Harrison
4. Howells
5. Kimball
6. Loup City
7. Newman Grove
8. Omaha
9. Pawnee City
10. Ravenna
11. Raymond
12. Wood River

APPENDIX C: LETTERS AND QUESTIONNAIRES MAILED TO VOCATIONAL AGRICULTURE INSTRUCTORS AND ADMINISTRATORS

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

April 1, 1981

Dear Administrator:

In February of 1981, vocational agriculture instructors in the states of Iowa, Kansas, Missouri, and Nebraska were contacted. We were requesting program information to identify the vocational agriculture programs which had a school farm or land laboratory. Your high school vocational agriculture program was one of those identified as having a school farm and was randomly selected for this study. We are conducting this study to determine the value of these school farm laboratories in providing learning activities for high school vocational agriculture students.

Your cooperation as a participant in this research project is vital to the success of this study. You and your vocational agriculture instructor with major responsibility for the school farm laboratory are the only two persons selected from your high school to participate in this study. We ask that you do not confer with your vocational agriculture instructor in answering the questionnaire. He or she is being contacted separately and asked to respond.

All of the responses will be grouped so that no individual administrator, instructor, or school response can be identified. Furthermore, all information will be kept confidential. We would appreciate your response to the enclosed questionnaire as it is extremely vital to the success of this study. We ask that you complete and return the questionnaire by April 17, 1981. We will also send you a summary of the final results of the study if you so request.

Thank you for your cooperation.

Sincerely,

David A. McCarthy
Graduate Student

David L. Williams
Professor

DM/DLW/lh
Enclosure

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

April 1, 1981

Dear Colleague:

Thank you for responding to my earlier one-page survey on vocational agriculture school farms or land laboratories. Your school is one of many identified as having a school farm and was randomly selected to participate in an in-depth study of the learning activities provided on school farms for vocational agriculture students. You and the administrator you designated are the only two persons selected from your high school to participate in this study.

Your cooperation as a participant in this research project is vital to the success of the study. We ask that you do not confer with your administrator in completing the questionnaire. He or she is being contacted separately and asked to respond. All of the responses will be grouped or combined so that no individual response can be identified by person or school.

We would appreciate your response to the questionnaire by April 17, 1981. All of the information you provide will be kept confidential, and a summary of the final results will be sent to you if you so request.

Again, your cooperation in completing and returning this questionnaire is essential for the success of this study and is greatly appreciated.

Sincerely,

David A. McCarthy
Graduate Student

David L. Williams
Professor

DM/DLW/lh
Enclosure

ATTITUDES TOWARD INVOLVEMENT OF VOCATIONAL AGRICULTURE STUDENTS ON SCHOOL FARMS

Iowa State University, Ames

PART I

DIRECTIONS: Each of the following statements describes a benefit high school vocational agriculture students may or may not receive from a school farm. Respond to each of the following statements in terms of the benefit vocational agriculture students receive from their involvement in school farm activities. If you feel that there is no benefit, write "1" on the line in front of the statement. If you feel there is great benefit, write "9" on the line. Use any number from 1 to 9 to indicate how beneficial you feel involvement in school farm activities is to high school vocational agriculture students. Please respond to each statement using the following scale.

1 2 3 4 5 6 7 8 9

No Benefit — Average Benefit — Great Benefit

THE INVOLVEMENT OF VOCATIONAL AGRICULTURE STUDENTS IN AGRICULTURAL ACTIVITIES ON THE SCHOOL FARM OR LAND LABORATORY:

_____ 1. assists students in developing skills necessary for obtaining a start in farming.

_____ 2. teaches students to produce agricultural products efficiently.

_____ 3. teaches students to efficiently market agricultural products.

_____ 4. allows students to understand the financial requirements of a farm business.

_____ 5. develops an understanding of the need for efficient mechanization in agriculture.

_____ 6. allows students to make management decisions based upon an analysis of farming records.

_____ 7. teaches students to conserve soil and other natural resources.

_____ 8. allows students to develop effective human relations skills.

_____ 9. teaches students to make efficient use of machinery, equipment and other physical resources of the farm business.

_____ 10. teaches students to make efficient use of farm labor.

_____ 11. encourages students to participate in activities to improve their home and its surroundings.

_____ 12. allows students to apply the principles of soil science.

_____ 13. involves students with the total crop production cycle.

_____ 14. develops competencies in business management which prepare students for agricultural occupations off-the-farm.

_____ 15. develops mechanical abilities needed in non-farm agribusiness occupations.

_____ 16. develops competencies in livestock production needed in non-farm agribusiness occupations.

_____ 17. develops an understanding of the services related to processing agricultural products.

_____ 18. generates circumstances for students to market agricultural products.

_____ 19. develops an understanding of the services and supplies provided by non-farm agribusinesses.

_____ 20. allows students to understand selling principles used by agricultural supply and service businesses.

_____ 21. develops student interaction with agribusiness so they can understand how agricultural businesses are financially operated.

_____ 22. allows students to discover what employers expect from employees.

_____ 23. allows students to understand business policies and procedures.

_____ 24. allows students to learn how agribusinesses maintain effective customer relations.

_____ 25. increases students' respect for other persons' property.

(Please continue on the next page.)

PART I (continued)

1 2 3 4 5 6 7 8 9

No Benefit — Average Benefit — Great Benefit

THE INVOLVEMENT OF VOCATIONAL AGRICULTURE STUDENTS IN AGRICULTURAL ACTIVITIES ON THE SCHOOL FARM OR LAND LABORATORY:

_____ 26. encourages use of records and reports similar to those used by agribusinesses.

_____ 27. teaches students to interpret records and reports in making agribusiness management decisions.

_____ 28. allows students to practice business procedures.

_____ 29. teaches students to follow established policies and regulations.

_____ 30. aids students in understanding the importance of agriculture.

_____ 31. allows students to recognize employment opportunities in farm and non-farm agricultural occupations.

_____ 32. generates situations where students can evaluate specific information regarding jobs in agriculture.

_____ 33. allows students to recognize their abilities, talents and interests which relate to careers in agriculture.

_____ 34. provides students with supervised occupational experience in production agriculture.

_____ 35. helps students recognize the need for continuing education after high school to keep up with new developments in agriculture.

_____ 36. helps students recognize employment agencies and organizations they can use in seeking an agricultural occupation.

_____ 37. enables students to analyze opportunities for self-employment.

_____ 38. allows students to analyze agricultural career opportunities with respect to their personal interests and abilities.

_____ 39. increases students' interest in seeking employment in agriculture.

_____ 40. allows students to develop abilities, aptitudes and skills that are helpful in applying and interviewing for employment.

_____ 41. generates the incentive for students to plan and pursue educational programs appropriate to job requirements.

_____ 42. provides students with an understanding of ways and means to progress and advance in agricultural occupations.

_____ 43. generates an appreciation for the dignity of work.

_____ 44. teaches students to respect the opinions, feelings and concerns of others.

_____ 45. dictates group interaction which generates the development of communication skills.

_____ 46. promotes the development of desirable behavioral patterns.

_____ 47. develops acceptable personal practices and work habits.

_____ 48. generates increased student participation in the FFA.

_____ 49. promotes group activities which in turn develops individual leadership abilities.

_____ 50. generates an incentive for the development of community improvement activities.

_____ 51. provides students with opportunities for involvement with local civic organizations.

_____ 52. promotes the development of desirable relationships between farm and non-farm people.

_____ 53. encourages students to participate in organizations or agencies which develop policies and programs affecting agriculture.

(Please continue on the next page.)

PART II

DIRECTIONS: Please answer each of the following questions as they relate to your situation. Fill in the blank to the left of the question with the information requested, or circle the appropriate number for the yes and no responses.

_____ teachers 1. How many high school vocational agriculture teachers are in the school system? (Include full-time, adult, or young farmer instructors.)

_____ years 2. How many years have you taught vocational agriculture? (Include the 1980-81 school year.)

_____ years 3. How many years have you been partially or fully responsible for the operation of a school farm? (Include the 1980-81 school year.)

_____ students 4. How many high school vocational agriculture students are in the department? (Include grades 9-12.)

_____ farm
_____ non-farm 5. How many farm and non-farm students are in the high school vocational agriculture program? (Include grades 9-12.)

_____ miles 6. How many miles is the school farm located from the vocational agriculture classroom?

_____ acres 7. How large is your school farm?

Yes	No		
1	2	8.	Is there livestock on the school farm?
1	2	9.	Is a person other than the vocational agriculture instructor(s) utilized in supervising student activities on the school farm?
1	2	10.	Do you believe that the school farm is an important teaching resource for the vocational agriculture program?
1	2	11.	If your vocational agriculture department did not presently operate a school farm, would you be receptive to the idea of starting one?

12. Rank in order from greatest use to least use (1-5) the ways in which the school farm is used by the vocational agriculture department. (Use 1, 2, 3, 4, & 5 only once in your ranking.)

____ to serve as a laboratory for vocational agriculture classes.

____ to provide a place for non-farm students to gain supervised occupational experiences.

____ to demonstrate new agricultural practices to the community.

____ to make money for the FFA chapter and/or vocational agriculture department.

____ for agricultural experimentation activities.

13. What agricultural activities are included in the school farm? Circle 1 (yes) if the activity is included and 2 (no) if the activity is not included as a school farm activity for vocational agriculture students.

Yes	No		
1	2	1.	Raising livestock
1	2	2.	Producing field crops
1	2	3.	Producing vegetables
1	2	4.	Producing small fruits (ex. strawberries, grapes, raspberries, etc.)
1	2	5.	Producing garden vegetables
1	2	6.	Producing fruits from fruit trees (ex. apples, pears, cherries, etc.)
1	2	7.	Producing greenhouse crops
1	2	8.	Producing nursery crops
1	2	9.	Conducting feeding trials
1	2	10.	Conducting fertilizer demonstrations
1	2	11.	Conducting insecticide demonstrations
1	2	12.	Conducting herbicide demonstrations
1	2	13.	Conducting no-till or minimum tillage operations
1	2	14.	Conducting yield tests on small grains (ex. wheat, oats, etc.)
1	2	15.	Conducting yield tests on feed grains (ex. corn, soybeans, etc.)
1	2	16.	Conducting plant population and yield tests
1	2	17.	Conducting turf grass management activities
1	2	18.	Conducting landscaping activities
1	2	19.	Conducting livestock judging contests
1	2	20.	Conducting land judging contests
1	2	21.	Conducting a Food for America program
1	2	22.	Operating agricultural machinery and equipment by vocational agricultural students
1	2	23.	Conserving the soil or other natural resources
		24.	Other (specify) _____

14. How are vocational agriculture students involved on the school farm? (Circle 1 for yes or circle 2 for no.)

Yes	No		
1	2	1.	Individual student ownership of livestock or crops
1	2	2.	Group or cooperative ownership of livestock or crops
1	2	3.	Vocational agriculture class activities

(Please continue on the next page.)

15. What percent of your present vocational agriculture students had the following as their primary supervised occupational experience program during the 1980-81 school year? (total should equal 100%)

_____ % 1. employment on a farm other than the home farm

_____ % 2. employment in a non-farm agricultural business

_____ % 3. production of livestock or crops on the home farm

_____ % 4. work on the school farm

_____ % 5. work in the greenhouse at school

_____ % 6. involvement in exploratory activities on a farm or in an agribusiness (no pay)

_____ % 7. work in the agricultural mechanics laboratory at school

* * * *

ATTITUDES TOWARD INVOLVEMENT OF VOCATIONAL AGRICULTURE STUDENTS ON SCHOOL FARMS

Iowa State University, Ames

PART I

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_____ 10. teaches students to make efficient use of farm labor.

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_____ 13. involves students with the total crop production cycle.

_____ 14. develops competencies in business management which prepare students for agricultural occupations off-the-farm.

_____ 15. develops mechanical abilities needed in non-farm agribusiness occupations.

_____ 16. develops competencies in livestock production needed in non-farm agribusiness occupations.

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_____ 19. develops an understanding of the services and supplies provided by non-farm agribusinesses.

_____ 20. allows students to understand selling principles used by agricultural supply and service businesses.

_____ 21. develops student interaction with agribusiness so they can understand how agricultural businesses are financially operated.

_____ 22. allows students to discover what employers expect from employees.

_____ 23. allows students to understand business policies and procedures.

_____ 24. allows students to learn how agribusinesses maintain effective customer relations.

_____ 25. increases students' respect for other persons' property.

(Please continue on the next page.)

PART I (continued)

1 2 3 4 5 6 7 8 9
No Benefit — Average Benefit — Great Benefit

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_____ 35. helps students recognize the need for continuing education after high school to keep up with new developments in agriculture.

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_____ 37. enables students to analyze opportunities for self-employment.

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_____ 52. promotes the development of desirable relationships between farm and non-farm people.

_____ 53. encourages students to participate in organizations or agencies which develop policies and programs affecting agriculture.

(Please continue on the next page.)

PART II

DIRECTIONS: Please answer each of the following questions as they relate to your situation. Fill in the blank to the left of the question number with the information requested, or circle the appropriate number for the yes and no responses.

		Yes	No	
_____ years	1. How many years have you been a high school administrator? (Include the 1980-81 school year.)	1	2	5. Have you ever taught vocational agriculture?
_____ years	2. How many years have you been a high school administrator of a school where vocational agriculture was offered? (Include the 1980-81 school year.)	1	2	6. Have you ever farmed part-time or full-time?
_____ years	3. How many years have you been involved with the operation of a vocational agriculture school farm? (Include the 1980-81 school year.)	1	2	7. Have you ever been employed by an agribusiness or agricultural agency?
_____ students	4. What is the present enrollment of your high school? (grades 9-12)	1	2	8. Do you have a son or daughter who has or is presently enrolled in vocational agriculture classes?
		1	2	9. Do you believe that the school farm is an important teaching resource for the vocational agriculture program?
		1	2	10. If the vocational agriculture department did not presently operate a school farm, would you be receptive to the idea of starting one?

* *

11. What do you see as the major advantages of a school farm for the vocational agriculture department?

_____

_____

_____

_____

12. What do you see as the major disadvantages of a school farm for the vocational agriculture department?

_____

_____

_____

_____

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APPENDIX D: FOLLOW-UP LETTERS MAILED TO ADMINISTRATORS AND VOCATIONAL AGRICULTURE INSTRUCTORS

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

May 1, 1981

Dear Administrator:

Several weeks ago, a questionnaire was mailed to you and other high school administrators in the states of Iowa, Kansas, Missouri,and Nebraska. The purpose of the questionnaire was to seek administrator perceptions regarding the benefits vocational agriculture students receive from their involvement in school farm activities.

I am quite aware that you have numerous duties which have kept you busy over the last few weeks. I'm sure that these duties and responsibilities have not allowed you sufficient time to respond. Therefore, I have included another questionnaire for your convenience.

Please complete the questionnaire and return it by May 13, 1981. Your response is extremely vital to the success of our study. Your assistance is greatly appreciated.

Sincerely,

David A. McCarthy
Graduate Student

David L. Williams
Professor

DM/DLW/dv
Enclosure

Iowa State University of Science and Technology Ames, Iowa 50011

Department of Agricultural Education
223 Curtiss Hall
Telephone 515-294-5872

May 1, 1981

Dear Colleague:

Several weeks ago, a questionnaire was mailed to you and other high school vocational agriculture instructors in the States of Iowa, Kansas, Missouri, and Nebraska. The purpose of the questionnaire was to seek instructors perceptions regarding the benefits vocational agriculture students receive from their involvement in school farm activities.

I am quite sure that you have been extremely busy over the past few weeks and haven't had sufficient time to respond. Therefore, I have included another questionnaire for your convenience.

Please complete the questionnaire and return it by May 13, 1981. Your response is extremely vital to the success of this study and we appreciate your assistance.

Sincerely,

David A. McCarthy
Graduate Student

David L. Williams
Professor

DM/DW/dv
Enclosure

APPENDIX E: CODING INSTRUCTIONS FOR TRANSFERRING ADMINISTRATOR AND VOCATIONAL AGRICULTURE INSTRUCTOR INFORMATION TO DATA CARDS

Coding Instructions for Transferring
Administrator Information to Data Cards

Variable	Instrument Item Number	Response Range	Card Number	Column Number
STATE	Cover Code	1-4	1	1
Iowa = 1 Kansas = 2 Missouri = 3 Nebraska = 4				
POSITION	Cover Code	1-2	1	2
Instructor = 1 Administrator = 2				
SCHOOL NUMBER	Cover Code	01-26	1	3-4
Card Number	Cover Code	1	1	5
Part I	1	1-9	1	6
Part I	2	1-9	1	7
Part I	3	1-9	1	8
Part I	4	1-9	1	9
Part I	5	1-9	1	10
Part I	6	1-9	1	11
Part I	7	1-9	1	12
Part I	8	1-9	1	13
Part I	9	1-9	1	14
Part I	10	1-9	1	15
Part I	11	1-9	1	16
Part I	12	1-9	1	17
Part I	13	1-9	1	18
Part I	14	1-9	1	19
Part I	15	1-9	1	20
Part I	16	1-9	1	21
Part I	17	1-9	1	22
Part I	18	1-9	1	23
Part I	19	1-9	1	24
Part I	20	1-9	1	25
Part I	21	1-9	1	26
Part I	22	1-9	1	27
Part I	23	1-9	1	28
Part I	24	1-9	1	29
Part I	25	1-9	1	30
Part I	26	1-9	1	31

Variable	Instrument Item Number	Response Range	Card Number	Column Number
Part I	27	1-9	1	32
Part I	28	1-9	1	33
Part I	29	1-9	1	34
Part I	30	1-9	1	35
Part I	31	1-9	1	36
Part I	32	1-9	1	37
Part I	33	1-9	1	38
Part I	34	1-9	1	39
Part I	35	1-9	1	40
Part I	36	1-9	1	41
Part I	37	1-9	1	42
Part I	38	1-9	1	43
Part I	39	1-9	1	44
Part I	40	1-9	1	45
Part I	41	1-9	1	46
Part I	42	1-9	1	47
Part I	43	1-9	1	48
Part I	44	1-9	1	49
Part I	45	1-9	1	50
Part I	46	1-9	1	51
Part I	47	1-9	1	52
Part I	48	1-9	1	53
Part I	49	1-9	1	54
Part I	50	1-9	1	55
Part I	51	1-9	1	56
Part I	52	1-9	1	57
Part I	53	1-9	1	58
Part II	1	1-35	1	59-60
Part II	2	1-35	1	61-62
Part II	3	1-35	1	63-64
Part II	4	1-1000	1	65-68
Part II	5	1-2	1	69

Yes = 1
No = 2

Variable	Instrument Item Number	Response Range	Card Number	Column Number
Part II Yes = 1 No = 2	6	1-2	1	70
Part II Yes = 1 No = 2	7	1-2	1	71
Part II Yes = 1 No = 2	8	1-2	1	72
Part II Yes = 1 No = 2	9	1-2	1	73
Part I Yes = 1 No = 2	10	1-2	1	74

Coding Instructions for Transferring
Vocational Agriculture Information to Data Cards

Variable	Instrument Item Number	Response Range	Card Number	Column Number
STATE	Cover Code	1-4	1	1
Iowa = 1 Kansas = 2 Missouri = 3 Nebraska = 4				
POSITION	Cover Code	1-2	1	2
Instructor = 1 Administrator = 2				
SCHOOL NUMBER	Cover Code	01-26	1	3-4
CARD NUMBER	Cover Code	1-2	1	5
Part I	1	1-9	1	6
Part I	2	1-9	1	7
Part I	3	1-9	1	8
Part I	4	1-9	1	9
Part I	5	1-9	1	10
Part I	6	1-9	1	11
Part I	7	1-9	1	12
Part I	8	1-9	1	13
Part I	9	1-9	1	14
Part I	10	1-9	1	15
Part I	11	1-9	1	16
Part I	12	1-9	1	17
Part I	13	1-9	1	18
Part I	14	1-9	1	19
Part I	15	1-9	1	20
Part I	16	1-9	1	21
Part I	17	1-9	1	22
Part I	18	1-9	1	23
Part I	19	1-9	1	24
Part I	20	1-9	1	25
Part I	21	1-9	1	26
Part I	22	1-9	1	27
Part I	23	1-9	1	28
Part I	24	1-9	1	29
Part I	25	1-9	1	30

Variable	Instrument Item Number	Response Range	Card Number	Column Number
Part I	26	1-9	1	31
Part I	27	1-9	1	32
Part I	28	1-9	1	33
Part I	29	1-9	1	34
Part I	30	1-9	1	35
Part I	31	1-9	1	36
Part I	32	1-9	1	37
Part I	33	1-9	1	38
Part I	34	1-9	1	39
Part I	35	1-9	1	40
Part I	36	1-9	1	41
Part I	37	1-9	1	42
Part I	38	1-9	1	43
Part I	39	1-9	1	44
Part I	40	1-9	1	45
Part I	41	1-9	1	46
Part I	42	1-9	1	47
Part I	43	1-9	1	48
Part I	44	1-9	1	49
Part I	45	1-9	1	50
Part I	46	1-9	1	51
Part I	47	1-9	1	52
Part I	48	1-9	1	53
Part I	49	1-9	1	54
Part I	50	1-9	1	55
Part I	51	1-9	1	56
Part I	52	1-9	1	57
Part I	53	1-9	1	58
Part II	1	1-9	1	59
Part II	2	1-35	1	60-61
Part II	3	1-35	1	62-63
Part II	4	1-200	1	64-66
Part II	5.1	1-150	1	67-69
Part II	5.2	1-150	1	70-72
Part II	6	1-25	1	73-74

Variable	Instrument Item Number	Response Range	Card Number	Column Number
Part II	7	1-500	1	75-77
Part II	8	1-2	1	78
Yes = 1 No = 2				
Part II	9	1-2	1	79
Yes = 1 No = 2				
Part II	10	1-2	1	80
Yes = 1 No = 2				
STATE	Cover Code	1-4	2	1
Iowa = 1 Kansas = 2 Missouri = 3 Nebraska = 4				
POSITION	Cover Code	1-2	2	2
Instructor = 1 Administrator = 2				
SCHOOL NUMBER	Cover Code	01-26	2	3-4
CARD NUMBER	Cover Code	1-2	2	5
Part II	11	1-2	2	6
Yes = 1 No = 2				
Part II	12.1	1-5	2	7
Greatest Use = 1 Lease Use = 5				
Part II	12.2	1-5	2	8
Part II	12.3	1-5	2	9
Part II	12.4	1-5	2	10
Part II	12.5	1-5	2	11
Part II	13.1	1-2	2	12
Yes = 1 No = 2				
Part II	13.2	1-2	2	13
Part II	13.3	1-2	2	14
Part II	13.4	1-2	2	15
Part II	13.5	1-2	2	16

Variable	Instrument Item Number	Response Range	Card Number	Column Number
Part II	13.6	1-2	2	17
Part II	13.7	1-2	2	18
Part II	13.8	1-2	2	19
Part II	13.9	1-2	2	20
Part II	13.10	1-2	2	21
Part II	13.11	1-2	2	22
Part II	13.12	1-2	2	23
Part II	13.13	1-2	2	24
Part II	13.14	1-2	2	25
Part II	13.15	1-2	2	26
Part II	13.16	1-2	2	27
Part II	13.17	1-2	2	28
Part II	13.18	1-2	2	29
Part II	13.19	1-2	2	30
Part II	13.20	1-2	2	31
Part II	13.21	1-2	2	32
Part II	13.22	1-2	2	33
Part II	13.23	1-2	2	34
Part II	14.1	1-2	2	35
Yes = 1 No = 2				
Part II	14.2	1-2	2	36
Part II	14.3	1-2	2	37
Part II	15.1	1-99	2	38-39
Part II	15.2	1-99	2	40-41
Part II	15.3	1-99	2	42-43
Part II	15.4	1-99	2	44-45
Part II	15.5	1-99	2	46-47
Part II	15.6	1-99	2	48-49
Part II	15.7	1-99	2	50-51